Cisco UCS B420 M3 Blade Server

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OVERVIEW

Designed for enterprise performance and scalability, the Cisco® UCS B420 M3 Blade Server combines the advantage of 4-socket computing with the cost-effective Intel® Xeon® processor E5-4600 product family, for demanding virtualization and database workloads.

With industry-leading compute density, I/O bandwidth and memory footprint, the UCS B420 M3 is a balanced, high-performance platform that complements the UCS blade server portfolio. The full-width UCS B420 M3 supports 1.5 TB of memory and leverages UCS VIC technology for up to 160 Gb aggregate I/O bandwidth.

The UCS B420 M3 is part of the Cisco Unified Computing System (UCS) that combines blade and rack servers with networking and storage access into a single unified system. Centrally configured through unified, model-based management, Cisco UCS simplifies and speeds deployment of enterprise-class applications running in bare-metal, virtualized and cloud-computing environments.

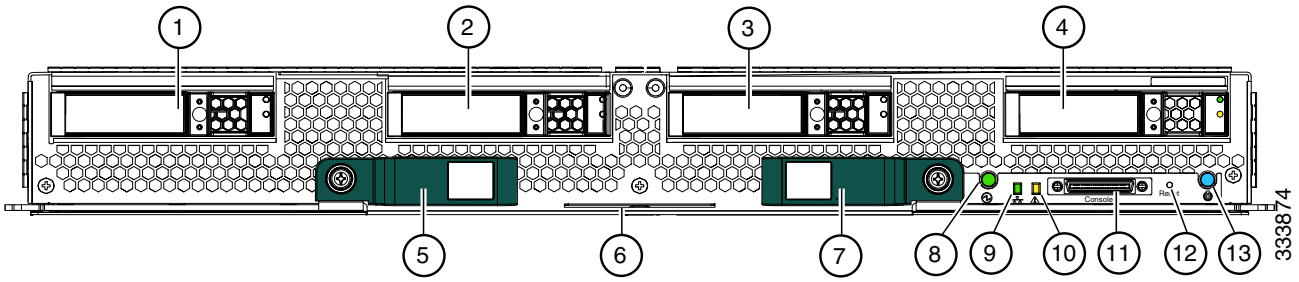
Figure 1 Cisco UCS B420 M3 Blade Server

DETAILED VIEWS

Blade Server Front View

Figure 2 is a detailed front view of the Cisco UCS B420 M3 Blade Server.

Figure 2 Blade Server Front View



1	Drive bay 1	**8**	Power button and LED
2	Drive bay 2	**9**	Network link status LED
3	Drive bay 3	**10**	Blade health LED
4	Drive bay 4	**11**	Console connector[1]
5	Blade ejector handle	**12**	Reset button access
6	Asset pull handle (a blank asset tag is provided on which you can add your own label or sticker or you can use a marker to write your asset information on the tag)	**13**	Beaconing LED and button
7	Blade ejector handle	**-**	-

Notes

1. For information about the KVM local I/O cable that plugs into the console connector (a cable is included with every Cisco UCS 5100 Series blade server chassis accessory kit), see *CHOOSE LOCAL KVM I/O CABLE* (OPTIONAL) on page 32*.

BASE SERVER STANDARD CAPABILITIES and FEATURES

Table 1 lists the capabilities and features of the base server. Details about how to configure the server for a particular feature or capability (for example, number of processors, disk drives, or amount of memory) are provided in *CONFIGURING the SERVER on page 7*.

NOTE: The B420 M3 blade server requires UCS Manager 2.0 (4b) or later to operate as part of the UCS system.

Table 1 Capabilities and Features

Capability/Feature	Description
Blade server chassis	The full-width UCS B420 M3 Blade Server mounts in a Cisco UCS 5100 series blade server chassis
CPU	Up to four Intel® E5-4600 series processor family CPUs. 2- and 4-CPU configurations are supported on the UCS B420 M3.
Chipset	Intel® C600 series chipset
Memory	48 total slots for registered ECC DIMMs
I/O	3 configurable adapter slots: ■ One slot supports the Cisco VIC 1240 adapter only. ■ Two slots support Cisco adapters, Emulex and QLogic adapters, and Cisco UCS Storage Accelerator adapters.
Storage controller	Integrated LSI Logic SAS 2208R controller ■ SAS/SATA/SSD support ■ RAID 0, 1, 5, 10 ■ Optional 1 GB flash-backed write cache
Internal storage devices	Four hot-plug 2.5” SFF drive bays One internal USB 2.0 port Two Cisco Flexible Flash secure digital card slots (future support)
Video	The Cisco Integrated Management Controller (CIMC) provides video: ■ Matrox G200e video controller ■ Integrated 2D graphics core with hardware acceleration ■ Supports all display resolutions up to 1920 x 1200 x 16 bpp resolution at 60 Hz ■ 24-bit color depth for all resolutions less than 1600x1200 ■ Up to 256 MB video memory

Table 1 Capabilities and Features *(continued)*

Capability/Feature	Description
Interfaces	Front panel ■ One console connector (see *CHOOSE LOCAL KVM I/O CABLE* (OPTIONAL) on page 32*)
Power subsystem	Integrated in the Cisco UCS 5100 series blade server chassis
Fans	Integrated in the Cisco UCS 5100 series blade server chassis
Integrated management processor	The built-in Cisco Integrated Management Controller (CIMC) GUI or CLI interface enables you to monitor the server inventory, health, and system event logs.

CONFIGURING the SERVER

Follow these steps to configure the Cisco UCS B420 M3 Blade Server:

- *STEP 1 VERIFY SERVER SKU, page 8*
- *STEP 2 CHOOSE CPU(S), page 9*
- *STEP 3 CHOOSE MEMORY, page 10*
- *STEP 4 CHOOSE DISK DRIVES (OPTIONAL), page 13*
- *STEP 5 CHOOSE ADAPTERS, page 15*
- *STEP 6 ORDER A TRUSTED PLATFORM MODULE (OPTIONAL), page 19*
- *STEP 7 ORDER CISCO FLEXIBLE FLASH SECURE DIGITAL CARDS, page 20*
- *STEP 8 ORDER INTERNAL USB 2.0 DRIVE (OPTIONAL), page 21*
- *STEP 9 ORDER FLASH-BACKED WRITE CACHE (OPTIONAL), page 22*
- *STEP 10 CHOOSE OPERATING SYSTEM AND VALUE-ADDED SOFTWARE, page 23*
- *STEP 11 CHOOSE OPERATING SYSTEM MEDIA KIT (OPTIONAL), page 26*
- *STEP 12 CHOOSE SERVICE and SUPPORT LEVEL, page 27*
- *STEP 13 CHOOSE LOCAL KVM I/O CABLE* (OPTIONAL), page 32*

STEP 1 VERIFY SERVER SKU

Verify the product ID (PID) of the server as shown in ***Table 2***.

Table 2 PID of the Base UCS B420 M3 Blade Server

Product ID (PID)	Description
UCSB-B420-M3	UCS B420 M3 Blade Server with no CPU, memory, HDD, SSD, mLOM, or adapter card

The base Cisco UCS B420 M3 blade server does not include the following components. They must be selected during product ordering:

- CPUs
- Memory
- Disk drives
- Cisco adapters (such as the VIC 1240, VIC 1280, and Port Expander for VIC 1240)
- Emulex and QLogic network adapters
- Cisco UCS Storage Accelerators (such as the LSI Logic adapter)

NOTE: Use the steps on the following pages to order servers with the configurable components that you want configured in your servers.

STEP 2 CHOOSE CPU(S)

The standard CPU features are:

- Intel Xeon processor E5-4600 series CPUs
- Core counts of 4, 6, or 8
- Cache sizes of 10, 12, 15, 16, or 20 MB

Select CPUs

The supported Intel Xeon E5-4600 series CPUs on the UCS B420 M3 are listed in ***Table 3***.

Table 3 Supported Intel CPUs: E5-4600 Series Processor Family CPUs

Product ID (PID)	Intel Number	Clock Freq (GHz)	Power (W)	Cache Size (MB)	Cores	QPI	Highest DDR3 DIMM Clock Support (MHz)
UCS-CPU-E5-4650	E5-4650	2.70	130	20	8	8 GT/s	1600
UCS-CPU-E5-4650L	E5-4650L	2.60	115	20	8	8 GT/s	1600
UCS-CPU-E5-4640	E5-4640	2.40	95	20	8	8 GT/s	1600
UCS-CPU-E5-4620	E5-4620	2.20	95	16	8	7.2 GT/s	1333
UCS-CPU-E5-4610	E5-4610	2.40	95	15	6	7.2 GT/s	1333
UCS-CPU-E5-4607	E5-4607	2.20	95	12	6	6.4 GT/s	1066
UCS-CPU-E5-4603	E5-4603	2.00	95	10	4	6.4 GT/s	1066

Supported Configurations

(1) Two-CPU Configuration

- Choose two identical CPUs from any one of the rows of ***Table 3***. CPUs 1 and 2 will be populated.

(2) Four-CPU Configuration

- Choose four identical CPUs from any one of the rows of ***Table 3***.

Notes

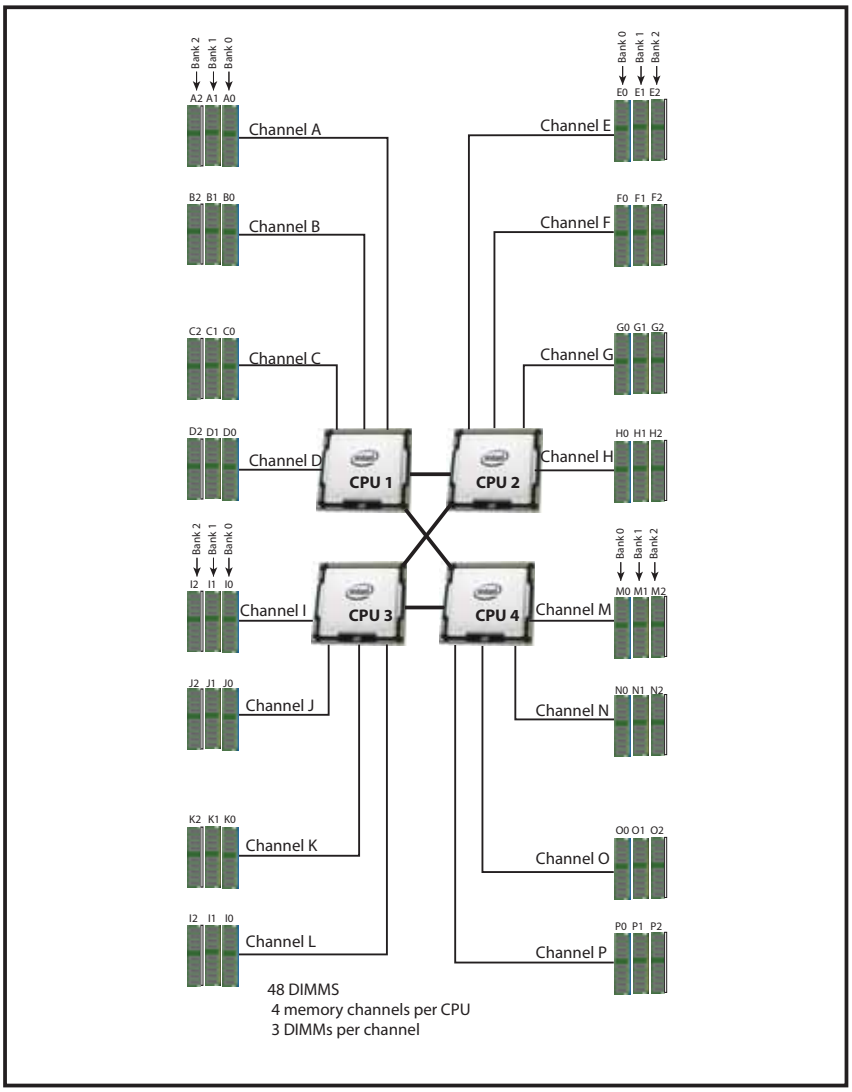
- The system will run at the lowest CPU or DIMM clock speed. For example, when using 1600-MHz DIMMs with an E5-4603 CPU (which can only support up to 1066-MHz DIMMs), the system will run at the lower speed of 1066 MHz.
- System speed is also dependent on how many DIMMs are populated per channel.
- For 2-CPU systems, only 24 DIMM slots are functional (channels A - H). See ***Table 9 on page 17*** for supported adapter combinations in 2-CPU systems.
- For 4-CPU systems, all 48 DIMM slots are functional.

STEP 3 CHOOSE MEMORY

The standard memory features are:

- DIMMs
  - Clock speed: 1600 MHz
  - Ranks per DIMM: 1 or 2
  - Operational voltage: dual (1.5 or 1.35 V); default = 1.5 V
  - Registered
- DDR3 ECC registered DIMMs (RDIMMs) or load-reduced DIMMS (LRDIMMS)
- Memory is organized with four memory channels per CPU, with up to three DIMMs per channel (DPC), as shown in ***Figure 3***.

Figure 3 UCS B420 M3 Memory Organization



Choose DIMMs and Memory Mirroring

Select the memory configuration and whether or not you want the memory mirroring option. The supported memory DIMMs and the mirroring option are listed in ***Table 4***.

When memory mirroring is enabled, the memory subsystem simultaneously writes identical data to two adjacent channels. If a memory read from one of the channels returns incorrect data due to an uncorrectable memory error, the system automatically retrieves the data from the other channel. A transient or soft error in one channel does not affect the mirrored data, and operation continues unless there is a simultaneous error in exactly the same location on a DIMM and its mirrored DIMM. Memory mirroring reduces the amount of memory available to the operating system by 50% because only one of the two populated channels provides data.

Table 4 Supported DDR3 DIMMs and Memory Mirroring Option

Product ID (PID)	PID Description	Voltage	Ranks /DIMM
DIMM Options			
UCS-ML-1X324RY-A	32 GB DDR3-1600-MHz LRDIMM/PC3-12800/4R/x4/1.35v/35nm	1.35/1.5 V	4
UCS-MR-1X162RY-A	16 GB DDR3-1600-MHz RDIMM PC3-12800/2R/x4/1.35v/35nm	1.35/1.5 V	2
UCS-MR-1X082RY-A	8GB DDR3-1600-MHz RDIMM PC3-12800/2R/x4/1.35v/35nm	1.35/1.5 V	2
UCS-MR-1X041RY-A	4GB DDR3-1600-MHz RDIMM PC3-12800/1R/x4/1.35v/35nm	1.35/1.5 V	1
Memory Mirroring Option			
N01-MMIRROR	Memory mirroring option		

Notes

- DIMM configuration rules:
  - The minimum configuration is 1 DIMM per CPU
  - The order in which DIMMs must be installed in a channel is Bank 0 (blue socket), then Bank 1 (black socket), then Bank 2 (white socket).
  - You cannot mix DIMM capacities within a bank
  - You can mix DIMM capacities within a channel
  - You cannot mix RDIMMs with LRDIMMs
  - LRDIMMs run at a maximum of 1333 MHz
  - DIMMs default to performance mode (1.5 V). To run DIMMs in power-savings mode (1.35 V), change the server BIOS settings.
- To optimize memory performance:
  - Configure DIMMs identically for each CPU

  - Fill banks equally across the CPU. See DIMM population guidelines in ***Table 23***, ***Table 24***, and ***Table 25***.
  - Populate less than 3 DPC
  - Select DIMMs with the highest clock speed for a given processor

- For 3 DPC configurations:
  - Maximum memory speed is 1066 MHz
  - Memory always runs at 1.5 V regardless if the BIOS setting is low-power mode (1.35 V) or performance mode (1.5 V)

  For more information regarding memory, see ***DIMM and CPU Layout on page 35***.

Supported Configurations

(1) Without memory mirroring:

- Select from 1 to 12 DIMMs per CPU (note that there are 12 DIMM slots per CPU). There must be at least 1 DIMM per CPU.

(2) With memory mirroring:

- Select 4 DIMMs per CPU (installed in bank 0), 8 DIMMs per CPU (installed in banks 0, 1), or 12 DIMMs per CPU (installed in banks 0, 1, 2).

STEP 4 CHOOSE DISK DRIVES (OPTIONAL)

The UCS B420 M3 can be ordered with or without drives. The B420 M3 provides:

- Four hot plug 2.5” SFF drive bays
- An embedded LSI 2208R RAID controller to provide RAID 0/1/5/10.

NOTE: The UCS B420 M3 blade server meets the external storage target and switch certifications as described in the following link:

http://www.cisco.com/en/US/docs/switches/datacenter/mds9000/interoperability/matrix/Matrix8.html#wp323852

Choose Drives

The supported drives in the UCS B420 M3 are listed in ***Table 5***.

Table 5 Supported Hot Plug Drives

Product ID (PID)	PID Description	Drive Type	Capacity
HDDs			
UCS-HDD900GI2F106	900 GB 6Gb SAS 10K RPM SFF HDD	SAS	900 GB
A03-D600GA2	600 GB 6Gb SAS 10K RPM SFF HDD	SAS	600 GB
UCS-HDD300GI2F105	300 GB 6Gb SAS 15K RPM SFF HDD	SAS	300 GB
A03-D300GA2	300 GB 6Gb SAS 10K RPM SFF HDD	SAS	300 GB
A03-D146GC2	146 GB 6Gb SAS 15K RPM SFF HDD	SAS	146 GB
A03-D1TBSATA	1 TB 6Gb SATA 7.2K RPM SFF HDD	SATA	1 TB
A03-D500GC3	500 GB 6Gb SATA 7.2K RPM SFF HDD	SATA	500 GB
SSDs			
UCS-SD400G0KA2-G	400 GB SATA 2.5" Enterprise Value SSD	SATA	400 GB
UCS-SD300G0KA2-E	300 GB Std Height 15mm SATA SSD	SATA	300 GB
UCS-SD200G0KA2-E	200 GB Std Height 15mm SATA SSD	SATA	200 GB
UCS-SD100G0KA2-G	100 GB SATA 2.5" Enterprise Value SSD	SATA	100 GB
UCS-SD100G0KA2-E	100 GB Std Height 15mm SATA SSD	SATA	100 GB

Supported Configurations

- Select 1, 2, 3, or 4 of the drives listed in ***Table 5***.

Notes

- When creating a RAID volume, mixing different capacity drives causes the system to use the lowest-capacity drive.
- Mixing of drive types is supported, but performance may be impacted. RAID volumes should use the same media type.

STEP 5 CHOOSE ADAPTERS

The adapter offerings are:

- Cisco Virtual Interface Cards (VICs)

Cisco-developed Virtual Interface Cards (VICs) provide flexibility to create multiple NIC and HBA devices. The VICs also support UCS Fabric Extender technologies.

- Converged Network Adapters (CNAs)

Emulex and QLogic Converged Network Adapters (CNAs) consolidate Ethernet and Storage (FC) traffic on the Cisco Unified Fabric.

- Cisco UCS Storage Accelerator Adapters

Cisco UCS Storage Accelerator adapters are designed specifically for the Cisco UCS B-series M3 blade servers and integrate seamlessly to allow improvement in performance and relief of I/O bottlenecks.

Table 6 shows supported adapter slot configurations.

You must install at least one adapter in one of the three adapter slots. Also see ***Network Connectivity on page 40*** for more information.

To help ensure that your operating system is compatible with the cards you have selected, please check the Hardware Compatibility List at this URL:

http://www.cisco.com/en/US/products/ps10477/prod_technical_reference_list.html

Choose an Adapter

The supported adapters are listed in ***Table 6***.

Table 6 Supported Adapters

Product ID (PID)	PID Description
Virtual Interface Cards (VICs)	
UCSB-MLOM-40G-01	VIC 1240. Dual 2x10 Gb for UCS M3 Blade Servers. Installed in adapter slot 1 only.
UCSB-MLOM-PT-01	Cisco UCS Port Expander for VIC 1240. Enables an additional dual 2x10 Gb for the VIC 1240, installed in adapter slot 2 only.
UCS-VIC-M82-8P	VIC 1280. Dual 4x10 Gb Virtual Interface Card
Converged Network Adapter (CNAs)	
UCSB-MEZ-QLG-03	Cisco UCS CNA M73KR-Q QLogic Adapter (dual-port 10 Gb)
UCSB-MEZ-ELX-03	Cisco UCS CNA M73KR-E Emulex (dual-port 10 Gb)
Cisco UCS Storage Accelerators	
UCSB-F-FIO-365M	Cisco UCS 365 GB MLC Fusion ioDrive2
UCSB-F-LSI-400S	LSI 400 GB SLC WarpDrive

"Adapter 1," "Adapter 2," and "Adapter 3" refer to the UCSM naming convention for the adapter slots (this document uses the UCSM naming convention). In the server BIOS and on the motherboard, the corresponding slots are labeled as "mLOM," "Mezz 1," and "Mezz 2," respectively. See *Table 7*.

Table 7 Adapter Slot Naming

Server BIOS and Motherboard Slot Naming	UCSM Slot Naming
mLOM (VIC 1240 only)	Adapter 1
Mezz1	Adapter 2
Mezz2	Adapter 3

Supported Configurations

(1) 4-CPU System Configuration

- Select an adapter combination in accordance with *Table 8*.

Table 8 Supported Adapter[1] Combinations (4-CPU Configuration)

Adapter Slot 1	Adapter Slot 2	Adapter Slot 3	Total Available Bandwidth		
			2 x 2208 XP	2 x 2204 XP	2 x 2104 XP
VIC 1240	Not populated	Not populated	40 Gb *Figure 11 on page 44*	20 Gb *Figure 23 on page 53*	20 Gb *Figure 35 on page 62*
VIC 1240	Not populated	VIC 1280	120 Gb *Figure 12 on page 44*	60 Gb *Figure 24 on page 53*	40 Gb *Figure 36 on page 62*
Not populated	Not populated	VIC 1280	80 Gb *Figure 13 on page 45*	40 Gb *Figure 25 on page 54*	20 Gb *Figure 37 on page 63*
VIC 1240	Not populated	Emulex or QLogic adapter	60 Gb *Figure 14 on page 45*	40 Gb *Figure 26 on page 54*	40 Gb *Figure 38 on page 63*
VIC 1240	Port Expander Card for VIC 1240	Not populated	80 Gb *Figure 15 on page 46*	40 Gb *Figure 27 on page 55*	Network I/O not supported[2]
Not populated	Not populated	Emulex or QLogic adapter	20 Gb *Figure 16 on page 47*	20 Gb *Figure 28 on page 55*	20 Gb *Figure 39 on page 64*
Not populated	Emulex or QLogic adapter	Emulex or QLogic adapter	40 Gb *Figure 17 on page 47*	40 Gb *Figure 29 on page 56*	Network I/O not supported[2]
VIC 1240	Port Expander Card for VIC 1240	VIC 1280	160 Gb *Figure 18 on page 48*	80 Gb *Figure 30 on page 57*	Network I/O not supported[2]
VIC 1240	Not populated	Cisco UCS Storage Accelerator[3]	40 Gb *Figure 19 on page 49*	20 Gb *Figure 31 on page 58*	20 Gb *Figure 40 on page 64*

Table 8 Supported Adapter[1] Combinations (4-CPU Configuration) *(continued)*

Adapter Slot 1	Adapter Slot 2	Adapter Slot 3	Total Available Bandwidth		
VIC 1240	Cisco UCS Storage Accelerator[3]	Cisco UCS Storage Accelerator[3]	40 Gb *Figure 20 on page 49*	20 Gb *Figure 32 on page 58*	20 Gb *Figure 41 on page 65*
Not populated	Cisco UCS Storage Accelerator	VIC 1280	80 Gb *Figure 21 on page 50*	40 Gb *Figure 33 on page 59*	20 Gb *Figure 42 on page 65*
VIC 1240	Cisco UCS Storage Accelerator	VIC 1280	120 Gb *Figure 22 on page 51*	60 Gb *Figure 34 on page 60*	40 Gb *Figure 43 on page 66*

Notes

1. In the server BIOS and on the motherboard, “Adapter 1,” “Adapter 2,” and “Adapter 3” are labeled as “mLOM,” “Mezz 1,” and “Mezz 2,” respectively
2. The 2104XP fabric extender is not compatible with any network I/O card installed in adapter slot 2. However, a Cisco UCS Storage Accelerator may be installed in adapter slot 3 if it is available.
3. This combination requires that both Storage Accelerators be identical.

(1) 2-CPU System Configuration

- Select an adapter combination in accordance with *Table 9*.

Table 9 Supported Adapter[1] Combinations (2-CPU Configuration)

Adapter Slot 1	Adapter Slot 2[2]	Adapter Slot 3	Total Available Bandwidth		
			2 x 2208XP	2 x 2204 XP	2 x 2104 XP
VIC 1240	Not populated	Not populated	40 Gb *Figure 11 on page 44*	20 Gb *Figure 23 on page 53*	20 Gb *Figure 35 on page 62*
VIC 1240	Not populated	VIC 1280	120 Gb *Figure 12 on page 44*	60 Gb *Figure 24 on page 53*	40 Gb *Figure 36 on page 62*
VIC 1240	Not populated	Emulex or QLogic adapter	60 Gb *Figure 14 on page 45*	40 Gb *Figure 26 on page 54*	40 Gb *Figure 38 on page 63*
VIC 1240	Port Expander Card for VIC 1240	Not populated	80 Gb *Figure 15 on page 46*	40 Gb *Figure 27 on page 55*	Network I/O not supported[3]
Not populated	Not populated	Emulex or QLogic adapter	20 Gb *Figure 16 on page 47*	20 Gb *Figure 28 on page 55*	20 Gb *Figure 39 on page 64*
VIC 1240	Port Expander Card for VIC 1240	VIC 1280	160 Gb *Figure 18 on page 48*	80 Gb *Figure 30 on page 57*	Network I/O not supported[3]
VIC 1240	Not populated	Cisco UCS Storage Accelerator	40 Gb *Figure 19 on page 49*	20 Gb *Figure 31 on page 58*	20 Gb *Figure 40 on page 64*

Notes

1. In the server BIOS and on the motherboard, “Adapter 1,” “Adapter 2,” and “Adapter 3” are labeled as “mLOM,” “Mezz 1,” and “Mezz 2,” respectively
2. Only the Port Expander for VIC 1240 is functional in adapter slot 2 in 2-CPU configurations
3. The 2104XP fabric extender is not compatible with any network I/O card installed in adapter slot 2.

STEP 6 ORDER A TRUSTED PLATFORM MODULE (OPTIONAL)

Trusted Platform Module (TPM) is a computer chip (microcontroller) that can securely store artifacts used to authenticate the platform (server). These artifacts can include passwords, certificates, or encryption keys. A TPM can also be used to store platform measurements that help ensure that the platform remains trustworthy. Authentication (ensuring that the platform can prove that it is what it claims to be) and attestation (a process helping to prove that a platform is trustworthy and has not been breached) are necessary steps to ensure safer computing in all environments.

The TPM ordering information is listed in ***Table 10***.

Table 10 Trusted Platform Module

Product ID (PID)	PID Description
UCSX-TPM1-001	Trusted Platform Module for UCS

STEP 7 ORDER CISCO FLEXIBLE FLASH SECURE DIGITAL CARDS

NOTE: Cisco Flexible Flash secure digital cards are currently orderable; however, they will be enabled only with future firmware and software updates.

Dual SDHC flash card sockets are provided on the front left side of the server.

The SDHC card ordering information is listed in ***Table 11***.

Table 11 Future Supported Configurations - Secure Digital Card(s)

Product ID (PID)	PID Description
UCS-SD-16G	16GB SD Card module for UCS Servers

NOTE: The SD card transfer rates are:

- Sequential reads: 23 MB/s
- Sequential writes: 20 MB/s

Future Supported Configurations

(1) Select one or two Cisco Flexible Flash secure digital cards

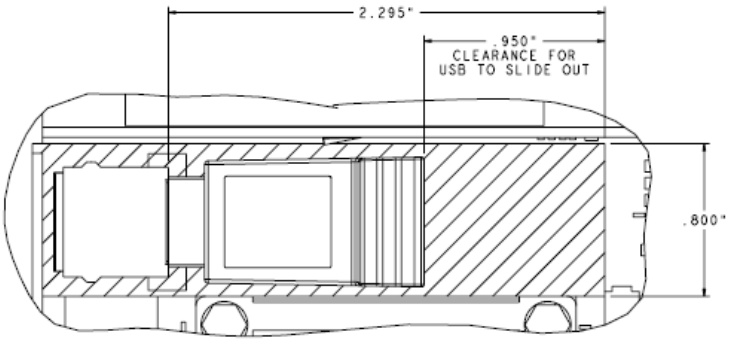
STEP 8 ORDER INTERNAL USB 2.0 DRIVE (OPTIONAL)

You may order one optional internal USB 2.0 drive. The USB drive ordering information is listed in *Table 12*.

Table 12 USB 2.0 Drive

Product ID (PID)	PID Description
UCS-USBFLSH-S-4GB	4GB Flash USB Drive (shorter length) for all M3 servers

NOTE: A clearance of 0.950 inches (24.1 mm) is required for the USB device to be inserted and removed (see the following figure).



See *Figure 5 on page 33* for the location of the USB connector.

NOTE: When the Cisco 4GB USB key is purchased with a server, it is pre-installed into the internal USB port and held firmly in place with a clip to protect it from shock and vibration during shipment and transportation. This clip also prevents the USB key from undergoing shock and vibration during ongoing customer operational use.

STEP 9 ORDER FLASH-BACKED WRITE CACHE (OPTIONAL)

You may order an optional 1 GB flash-backed write cache, which backs up the data written to the RAID controller write cache in the event of a power failure. The flash-backed write cache consists of a 1 GB memory module and a supercapacitor power backup module that connects to the motherboard with a cable. The ordering information is shown in ***Table 13***.

Table 13 Flash-backed Write Cache

Product ID (PID)	PID Description
UCSB-FBWC-1GB	Flash-backed write cache for LSI 2208R RAID controller

The flash-backed write cache provides RAID controller cache protection using NAND flash memory and a supercapacitor. In the event of a power or server failure, cached data is automatically transferred from the RAID controller DRAM write cache to flash. Once power is restored, the data in the NAND flash is copied back into the DRAM write cache until it can be flushed to the disk drives.

For the location of the supercap and the 1 GB memory module, see ***Figure 5 on page 33***.

STEP 10 CHOOSE OPERATING SYSTEM AND VALUE-ADDED SOFTWARE

Several operating systems and value-added software programs are available. Select as desired from ***Table 14***.

Table 14 OSs and Value-Added Software (for 4-CPU servers)

PID Description	Product ID (PID)
Microsoft Windows Server	
MSWS-08R2-STHV	Windows Svr 2008 ST media R2 ST (1-4CPU, 5CAL)
MSWS-08R2-ENHV	Windows Svr 2008 EN media R2 EN (1-8CPU, 25CAL)
MSWS-08R2-DCHV2S	Windows Svr 2008 R2-2 CPU-Data Center
MSWS-12-ST2S	Windows Server 2012 Standard (2 CPU/2 VMs)
MSWS-12-DC2S	Windows Server 2012 Datacenter (2 CPU/Unlimited VMs)
MSWS-12-ST2S-NS	Windows Server 2012 Standard (2 CPU/2 VMs) No Cisco SVC
MSWS-12-DC2S-NS	Windows Server 2012 Datacenter (2 CPU/Unlim VM) No Cisco Svc
SUSE Linux Enterprise Server	
SLES-1A	SLES/1yr subscription/svcs required/0 media
SLES-3A	SLES/3yr subscription/svcs required/0 media
UCS-SLES-TERMS	Acceptance of Terms, Standalone SLES License for UCS Servers
Red Hat Enterprise Linux	
RHEL-2S-1G-1A	RHEL/2 Socket/1 Guest/1Yr Svcs Required
RHEL-2S-1G-3A	RHEL/2 Socket/1 Guest/3Yr Svcs Required
RHEL-2S-4G-1A	RHEL/2 Socket/4 Guest/1Yr Svcs Required
RHEL-2S-4G-3A	RHEL/2 Socket/4 Guest/3Yr Svcs Required
RHEL-2S-UG-1A	RHEL/2 Socket/U Guest/1Yr Svcs Required
RHEL-2S-UG-3A	RHEL/2 Socket/U Guest/3Yr Svcs Required
RHEL-4S-1G-1A	RHEL/4 Socket/1 Guest/1Yr Svcs Required
RHEL-4S-1G-3A	RHEL/4 Socket/1 Guest/3Yr Svcs Required
RHEL-4S-4G-1A	RHEL/4 Socket/4 Guest/1Yr Svcs Required
RHEL-4S-4G-3A	RHEL/4 Socket/4 Guest/3Yr Svcs Required
RHEL-4S-UG-1A	RHEL/4 Socket/U Guest/1Yr Svcs Required
RHEL-4S-UG-3A	RHEL/4 Socket/U Guest/3Yr Svcs Required
RHEL-HA-2S-1A	RHEL Option/High-Availability/2 Socket/1Yr Svcs Required
RHEL-HA-2S-3A	RHEL Option/High-Availability/2 Socket/3Yr Svcs Required

Table 14 OSs and Value-Added Software (for 4-CPU servers) *(continued)*

PID Description	Product ID (PID)
RHEL-HA-4S-1A	RHEL Option/High-Availability/4 Socket/1Yr Svcs Required
RHEL-HA-4S-3A	RHEL Option/High-Availability/4 Socket/3Yr Svcs Required
RHEL-RS-2S-1A	RHEL Option/Resilient Storage w/HA /2 Socket/1 Yr Svcs Reqd
RHEL-RS-2S-3A	RHEL Option/Resilient Storage w/HA /2 Socket/3 Yr Svcs Reqd
RHEL-RS-4S-1A	RHEL Option/Resilient Storage w/HA /4 Socket/1 Yr Svcs Reqd
RHEL-RS-4S-3A	RHEL Option/Resilient Storage w/HA /4 Socket/3 Yr Svcs Reqd
RHEL-SFS-2S-1A	RHEL Option/Scalable File System/2 Socket/1 Yr Svcs Required
RHEL-SFS-2S-3A	RHEL Option/Scalable File System/2 Socket/1 Yr Svcs Required
RHEL-SFS-4S-1A	RHEL Option/Scalable File System/4 Socket/1 Yr Svcs Required
RHEL-SFS-4S-3A	RHEL Option/Scalable File System/4 Socket/3 Yr Svcs Required
BMC	
BMC-002	BMC BladeLogic CM, Physical Server
BMC-012	BMC BPPM Per Server
BMC-SE-4C	BMC BladeLogic Standard Edition, 4 Cores, Support Required
BMC-SE-6C	BMC BladeLogic Standard Edition, 6 Cores, Support Required
BMC-SE-8C	BMC BladeLogic Standard Edition, 8 Cores, Support Required
BMC-SE-10C	BMC BladeLogic Standard Edition, 10 Cores, Support Required
BMC-AE-4C	BMC BladeLogic Advanced Edition, 4 Cores, Support Required
BMC-AE-6C	BMC BladeLogic Advanced Edition, 6 Cores, Support Required
BMC-AE-8C	BMC BladeLogic Advanced Edition, 8 Cores, Support Required
BMC-AE-10C	BMC BladeLogic Standard Edition, 10 Cores, Support Required
UCS-BMC-TERMS	Acceptance of Terms, Standalone BMC License for UCS Servers
VMWare 5	
VMW-VS5-STD-1A	VMware vSphere 5 Standard for 1 Processor, 1 Year, Support Rqd
VMW-VS5-STD-2A	VMware vSphere 5 Standard for 1 Processor, 2 Year, Support Rqd
VMW-VS5-STD-3A	VMware vSphere 5 Standard for 1 Processor, 3 Year, Support Rqd
VMW-VS5-STD-4A	VMware vSphere 5 Standard for 1 Processor, 4 Year, Support Rqd
VMW-VS5-STD-5A	VMware vSphere 5 Standard for 1 Processor, 5 Year, Support Rqd
VMW-VS5-ENT-1A	VMware vSphere 5 Enterprise for 1 Processor, 1 Year Support Rqd
VMW-VS5-ENT-2A	VMware vSphere 5 Enterprise for 1 CPU, 2 Yr Support Rqd
VMW-VS5-ENT-3A	VMware vSphere 5 Enterprise for 1 CPU, 3 Yr Support Rqd
VMW-VS5-ENT-4A	VMware vSphere 5 Enterprise for 1 Processor, 4 Year Support Rqd

Table 14 OSs and Value-Added Software (for 4-CPU servers) *(continued)*

PID Description	Product ID (PID)
VMW-VS5-ENT-5A	VMware vSphere 5 Enterprise for 1 CPU, 5 Yr Support Rqd
VMW-VS5-ENTP-1A	VMware vSphere 5 Enterprise Plus for 1 Processor, 1 Year Support Rqd
VMW-VS5-ENTP-2A	VMware vSphere 5 Enterprise Plus for 1 CPU, 2 Yr Support Rqd
VMW-VS5-ENTP-3A	VMware vSphere 5 Enterprise Plus for 1 Processor, 3 Year Support Rqd
VMW-VS5-ENTP-4A	VMware vSphere 5 Enterprise Plus for 1 Processor, 4 Year Support Rqd
VMW-VS5-ENTP-5A	VMware vSphere 5 Enterprise Plus for 1 Processor, 5 Year Support Rqd
VMW-VC5-STD-1A	VMware vCenter 5 Server Standard, 1 yr support required
VMW-VC5-STD-2A	VMware vCenter 5 Server Standard, 2 yr support required
VMW-VC5-STD-3A	VMware vCenter 5 Server Standard, 3 yr support required
VMW-VC5-STD-4A	VMware vCenter 5 Server Standard, 4 yr support required
VMW-VC5-STD-5A	VMware vCenter 5 Server Standard, 5 yr support required
UCS-VMW-TERMS	Acceptance of Terms, Standalone VMW License for UCS Servers

STEP 11 CHOOSE OPERATING SYSTEM MEDIA KIT (OPTIONAL)

Choose the optional operating system media listed in ***Table 15***.

Table 15 OS Media

Product ID (PID)	PID Description
RHEL-6	RHEL 6 Recovery Media Only (Multilingual)
SLES-11	SLES 11 media only (multilingual)
MSWS-08R2-STHV-RM	Windows Svr 2008 R2 ST (1-4CPU, 5CAL), Media
MSWS-08RS-ENHV-RM	Windows Svr 2008 R2 EN (1-8CPU, 25CAL), Media
MSWS-08R2-DCHV-RM	Windows Svr 2008 R2 DC (1-8CPU, 25CAL), Media
MSWS-12-ST2S-RM	Windows Server 2012 Standard (2 CPU/2 VMs) Recovery Media
MSWS-12-DC2S-RM	Windows Server 2012 Datacenter (2 CPU/Unlimited VM) Rec Media

STEP 12 CHOOSE SERVICE and SUPPORT LEVEL

A variety of service options are available, as described in this section.

Unified Computing Warranty, No Contract

If you have noncritical implementations and choose to have no service contract, the following coverage is supplied:

- Three-year parts coverage.
- Next business day (NBD) onsite parts replacement eight hours a day, five days a week.
- 90-day software warranty on media.
- Ongoing downloads of BIOS, drivers, and firmware updates.
- UCSM updates for systems with Unified Computing System Manager. These updates include minor enhancements and bug fixes that are designed to maintain the compliance of UCSM with published specifications, release notes, and industry standards.

SMARTnet for UCS

For support of the entire Unified Computing System, Cisco offers the Cisco SMARTnet for UCS Service. This service provides expert software and hardware support to help sustain performance and high availability of the unified computing environment. Access to Cisco Technical Assistance Center (TAC) is provided around the clock, from anywhere in the world.

For UCS blade servers, there is Smart Call Home, which provides proactive, embedded diagnostics and real-time alerts. For systems that include Unified Computing System Manager, the support service includes downloads of UCSM upgrades. The Cisco SMARTnet for UCS Service includes flexible hardware replacement options, including replacement in as little as two hours. There is also access to Cisco's extensive online technical resources to help maintain optimal efficiency and uptime of the unified computing environment. You can choose a desired service listed in ***Table 16***.

Table 16 Cisco SMARTnet for UCS Service

Product ID (PID)	On Site?	Description
CON-PREM-B420M3	Yes	ONSITE 24X7X2 UCS B420 M3 Blade Server
CON-OSP-B420M3	Yes	ONSITE 24X7X4 UCS B420 M3 Blade Server
CON-OSE-B420M3	Yes	ONSITE 8X5X4 UCS B420 M3 Blade Server
CON-OS-B420M3	Yes	ONSITE 8X5XNBD UCS B420 M3 Blade Server
CON-S2P-B420M3	No	SMARTNET 24X7X2 UCS B420 M3 Blade Server
CON-SNTP-B420M3	No	SMARTNET 24X7X4 UCS B420 M3 Blade Server
CON-SNTE-B420M3	No	SMARTNET 8X5X4 UCS B420 M3 Blade Server
CON-SNT-B420M3	No	SMARTNET 8X5XNBD UCS B420 M3 Blade Server

SMARTnet for UCS Hardware Only Service

For faster parts replacement than is provided with the standard Cisco Unified Computing System warranty, Cisco offers the Cisco SMARTnet for UCS Hardware Only Service. You can choose from two levels of advanced onsite parts replacement coverage in as little as four hours. SMARTnet for UCS Hardware Only Service provides remote access any time to Cisco support professionals who can determine if a return materials authorization (RMA) is required. You can choose a service listed in ***Table 17***.

Table 17 SMARTnet for UCS Hardware Only Service

Product ID (PID)	Service Level GSP	On Site?	Description
CON-UCW7-B420M3	UCW7	Yes	UC PLUS 24X7X4OS UCS B420 M3 Blade Server
CON-UCW5-B420M3	UCW5	Yes	UC PLUS 8X5XNBDOS UCS B420 M3 Blade Server

Unified Computing Partner Support Service

Cisco Partner Support Service (PSS) is a Cisco Collaborative Services service offering that is designed for partners to deliver their own branded support and managed services to enterprise customers. Cisco PSS provides partners with access to Cisco's support infrastructure and assets to help them:

- Expand their service portfolios to support the most complex network environments
- Lower delivery costs
- Deliver services that increase customer loyalty

Partner Unified Computing Support Options enable eligible Cisco partners to develop and consistently deliver high-value technical support that capitalizes on Cisco intellectual assets. This helps partners to realize higher margins and expand their practice.

PSS is available to all Cisco PSS partners, but requires additional specializations and requirements. For additional information, see the following URL:

www.cisco.com/go/partnerucssupport

The two Partner Unified Computing Support Options include:

- Partner Support Service for UCS
- Partner Support Service for UCS Hardware Only

Partner Support Service for UCS provides hardware and software support, including triage support for third party software, backed by Cisco technical resources and level three support. See ***Table 18***.

Table 18 Partner Support Service for UCS

Product ID (PID)	Service Level GSP	On Site?	Description
CON-PSJ1-B420M3	PSJ1	No	UCS SUPP PSS 8X5XNBD UCS B420 M3 Blade Server
CON-PSJ2-B420M3	PSJ2	No	UCS SUPP PSS 8X5X4 UCS B420 M3 Blade Server
CON-PSJ3-B420M3	PSJ3	No	UCS SUPP PSS 24X7X4 UCS B420 M3 Blade Server
CON-PSJ4-B420M3	PSJ4	No	UCS SUPP PSS 24X7X2 UCS B420 M3 Blade Server

Partner Support Service for UCS Hardware Only provides customers with replacement parts in as little as two hours. See ***Table 19***.

Table 19 Partner Support Service for UCS (Hardware Only)

Product ID (PID)	Service Level GSP	On Site?	Description
CON-PSW2-B420M3	PSW2	No	UCS W PL PSS 8X5X4 UCS B420 M3 Blade Server
CON-PSW3-B420M3	PSW3	No	UCS W PL PSS 24X7X4 UCS B420 M3 Blade Server
CON-PSW4-B420M3	PSW4	No	UCS W PL PSS 24X7X2 UCS B420 M3 Blade Server

Unified Computing Combined Support Service

Combined Services makes it easier to purchase and manage required services under one contract. SMARTnet services for UCS help increase the availability of your vital data center infrastructure and realize the most value from your unified computing investment. The more benefits you realize from the Cisco Unified Computing System (Cisco UCS), the more important the technology becomes to your business. These services allow you to:

- Optimize the uptime, performance, and efficiency of your UCS
- Protect your vital business applications by rapidly identifying and addressing issues
- Strengthen in-house expertise through knowledge transfer and mentoring
- Improve operational efficiency by allowing UCS experts to augment your internal staff resources
- Enhance business agility by diagnosing potential issues before they affect your operations

You can choose a service listed in ***Table 20***.

Table 20 UCS Computing Combined Support Service

Product ID (PID)	Service Level GSP	On Site?	Description
CON-NCF2-B420M3	NCF2	No	CMB SPT SVC 24X7X2 UCS B420 M3 Blade Server
CON-NCF2P-B420M3	NCF2P	Yes	CMB SPT SVC 24X7X2OS UCS B420 M3 Blade Server
CON-NCF4P-B420M3	NCF4P	Yes	CMB SPT SVC 24X7X4OS UCS B420 M3 Blade Server
CON-NCF4S-B420M3	NCF4S	Yes	CMB SPT SVC 8X5X4OS UCS B420 M3 Blade Server
CON-NCFCS-B420M3	NCFCS	Yes	CMB SPT SVC 8X5XNBDOS UCS B420 M3 Blade Server
CON-NCFE-B420M3	NCFE	No	CMB SPT SVC 8X5X4 UCS B420 M3 Blade Server
CON-NCFP-B420M3	NCFP	No	CMB SPT SVC 24X7X4 UCS B420 M3 Blade Server
CON-NCFT-B420M3	NCFT	No	CMB SPT SVC 8X5XNBD UCS B420 M3 Blade Server

Unified Computing Drive Retention Service

With the Cisco Unified Computing Drive Retention (UCDR) Service, you can obtain a new disk drive in exchange for a faulty drive without returning the faulty drive. In exchange for a Cisco replacement drive, you provide a signed Certificate of Destruction (CoD) confirming that the drive has been removed from the system listed, is no longer in service, and has been destroyed.

Sophisticated data recovery techniques have made classified, proprietary, and confidential information vulnerable, even on malfunctioning disk drives. The UCDR service enables you to retain your drives and ensures that the sensitive data on those drives is not compromised, which reduces the risk of any potential liabilities. This service also enables you to comply with regulatory, local, and federal requirements.

If your company has a need to control confidential, classified, sensitive, or proprietary data, you might want to consider one of the Drive Retention Services listed in ***Table 21***.

NOTE: Cisco does not offer a certified drive destruction service as part of this service.

Table 21 Drive Retention Service Options

Service Description	Service Program Name	Service Level GSP	Service Level	Product ID (PID)
SMARTnet for UCS Service with Drive Retention	UCS DR	UCSD7	24x7x4 Onsite	CON-UCSD7-B420M3
		UCSD7	8x5xNBD Onsite	CON-UCSD5-B420M3
SMARTnet for UCS HW ONLY+Drive Retention	UCS HW+DR	UCWD7	24x7x4 Onsite	CON-UCWD7-B420M3
		UCWD5	8x5xNBD Onsite	CON-UCWD5-B420M3

For more service and support information, see the following URL:

http://www.cisco.com/en/US/services/ps2961/ps10312/Unified_Computing_Services_Overview.pdf

For a complete listing of available services for Cisco Unified Computing System, see this URL:

http://www.cisco.com/en/US/products/ps10312/serv_group_home.html

STEP 13 CHOOSE LOCAL KVM I/O CABLE* (OPTIONAL)

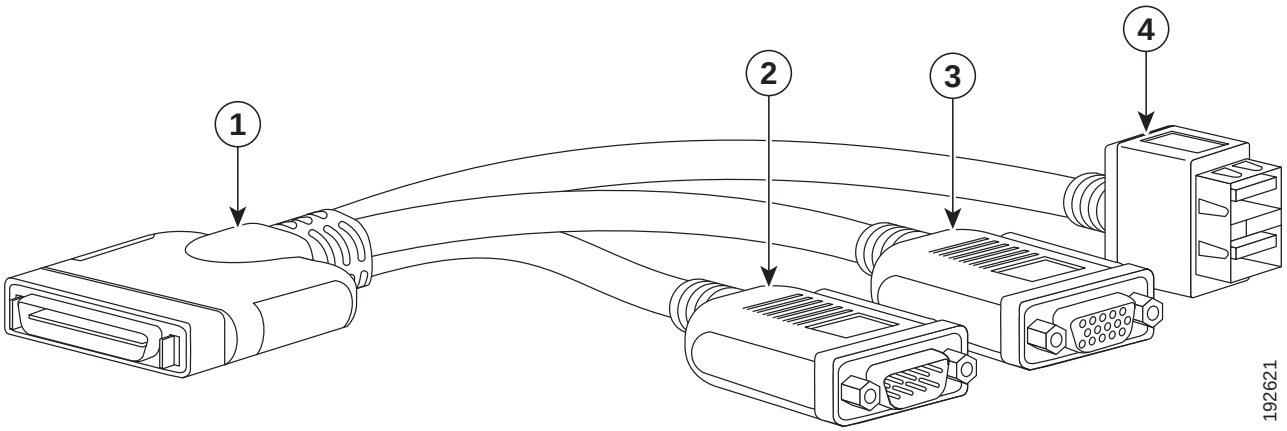
The local KVM I/O cable ships with every UCS 5100 Series blade chassis accessory kit. The cable provides a connection into the server, providing a DB9 serial connector, a VGA connector for a monitor, and dual USB ports for a keyboard and mouse. With this cable, you can create a direct connection to the operating system and the BIOS running on the server.

The local KVM I/O cable ordering information is listed in ***Table 22***.

Table 22 Local KVM I/O Cable

Product ID (PID)	PID Description
N20-BKVM=	Local KVM I/O cable for UCS servers console port

Figure 4 Local KVM I/O Cable



1	Connector (to server front panel)	**3**	VGA connector (for a monitor)
2	DB-9 serial connector	**4**	Two-port USB connector (for a mouse and keyboard)

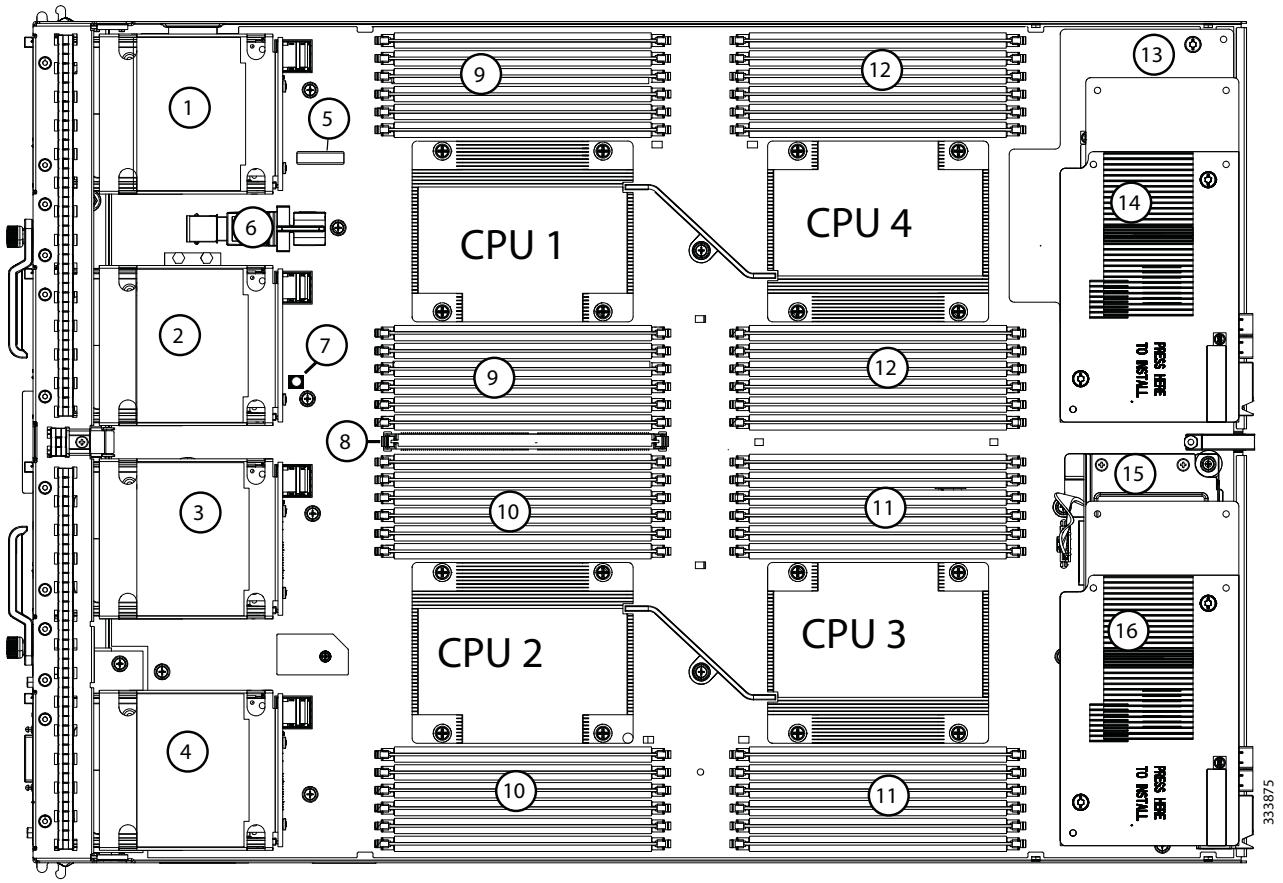
NOTE: *The blade chassis ships with the local KVM I/O cable.

SUPPLEMENTAL MATERIAL

System Board

A top view of the UCS B420 M3 system board is shown in ***Figure 5***.

Figure 5 UCS B420 M3 System Board



1	Drive bays	**9**	CPU 1 DIMMs
2	Drive bays	**10**	CPU 2 DIMMs
3	Drive bays	**11**	CPU 3 DIMMs
4	Drive bays	**12**	CPU 4 DIMMs
5	Battery	**13**	Adapter slot 1[1] for VIC 1240 only (partially hidden by adapter slot 2)
6	Internal USB port (USB drive shown installed)	**14**	Adapter slot 2[2]

7	Diagnostics button (factory use only)	**15**	Supercap module for Flash-backed write cache
8	1-GB Transportable Flash Module (TFM) for Flash-backed write cache	**16**	Adapter slot 3[3]

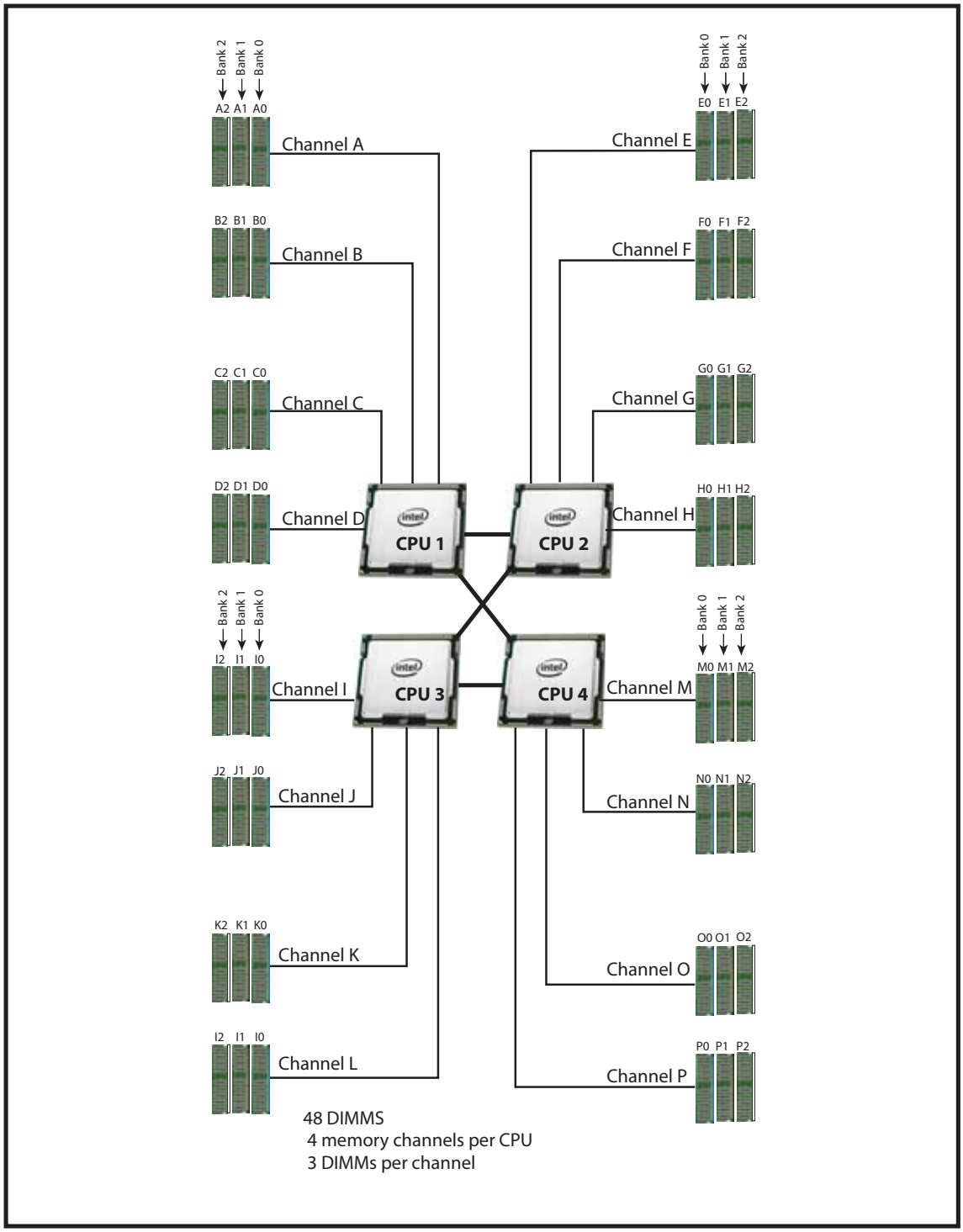
Notes

1. The B420 M3 motherboard labels this slot “mLOM”
2. The B420 M3 motherboard labels this slot “mezz 1”
3. The B420 M3 motherboard labels this slot “mezz 2”

DIMM and CPU Layout

Memory is organized as shown in ***Figure 6***.

Figure 6 UCS B420 M3 Memory Organization



Each CPU controls four memory channels and 12 DIMM slots, as follows:

- CPU1: Channels A, B, C, and D
  - Bank 0 - A0, B0, C0, and D0 (blue DIMM slots)
  - Bank 1 - A1, B1, C1, and D1 (black DIMM slots)
  - Bank 2 - A2, B2, C2, and D2 (white DIMM slots)
- CPU2: Channels E, F, G, and H
  - Bank 0 - E0, F0, G0, and H0 (blue DIMM slots)
  - Bank 1 - E1, F1, G1, and H1 (black DIMM slots)
  - Bank 2 - E2, F2, G2, and H2 (white DIMM slots)
- CPU3: Channels I, J, K, and L
  - Bank 0 - I0, J0, K0, and L0 (blue DIMM slots)
  - Bank 1 - I1, J1, K1, and L1 (black DIMM slots)
  - Bank 2 - I2, J2, K2, and L2 (white DIMM slots)
- CPU4: Channels M, N, O, and P
  - Bank 0 - M0, N0, O0, and P0 (blue DIMM slots)
  - Bank 1 - M1, N1, O1, and P1 (black DIMM slots)
  - Bank 2 - M2, N2, O2, and P2 (white DIMM slots)

DIMM Population Order

Populate the DIMMs for a CPU according to ***Table 23***.

Table 23 DIMM Population Order per CPU

DIMMs per CPU	Populate CPU 1 Slots	Populate CPU 2 Slots	Populate CPU 3 Slots	Populate CPU 4 Slots
1	A0	E0	I0	M0
2	A0, B0	E0, F0	I0, J0	M0, N0
3	A0, B0, C0	E0, F0, G0	I0, J0, K0	M0, N0, O0
4	A0, B0, C0, D0	E0, F0, G0, H0	I0, J0, K0, L0	M0, N0, O0, P0
5	Not recommended for performance reasons			
6	A0, B0, C0, A1, B1, C1	E0, F0, G0, E1, F1, G1	I0, J0, K0, I1, J1, K1	M0, N0, O0, M1, N1, O1
7	Not recommended for performance reasons			

Table 23 DIMM Population Order per CPU *(continued)*

DIMMs per CPU	Populate CPU 1 Slots	Populate CPU 2 Slots	Populate CPU 3 Slots	Populate CPU 4 Slots
8	A0, B0, C0, D0, A1, B1, C1, D1	E0, F0, G0, H0, E1, F1, G1, H1	I0, J0, K0, L0, I1, J1, K1, L1	M0, N0, O0, P0, M1, N1, O1, P1
9	A0, B0, C0, A1, B1, C1, A2, B2, C2	E0, F0, G0, E1, F1, G1, E2, F2, G2	I0, J0, K0, I1, J1, K1, I2, J2, K2	M0, N0, O0, M1, N1, O1, M2, N2, O2
10	Not recommended for performance reasons			
11	Not recommended for performance reasons			
12	A0, B0, C0, D0, A1, B1, C1, D1, A2, B2, C2, D2	E0, F0, G0, H0, E1, F1, G1, H1, E2, F2, G2, H2	I0, J0, K0, L0, I1, J1, K1, L1, I2, J2, K2, L2	M0, N0, O0, P0, M1, N1, O1, P1, M2, N2, O2, P2

A quick reference for the recommended DIMM population order is shown in ***Table 23*** and ***Table 24***. CPU 1 DIMM population order is shown as an example.

Table 24 DIMM Population Quick Reference for CPU 1 (for 1, 2, 4, 7, 8, 10, 11, or 12 DIMMS)

CPU Channel	Bank 0	Bank 1	Bank 2
A	1	5	9
B	2	6	10[1]
C	3	7[1]	11[1]
D	4	8	12

Notes
1. Not recommended for performance reasons

Table 25 DIMM Population Quick Reference for CPU 1 (for 3, 5, 6, or 9 DIMMS)

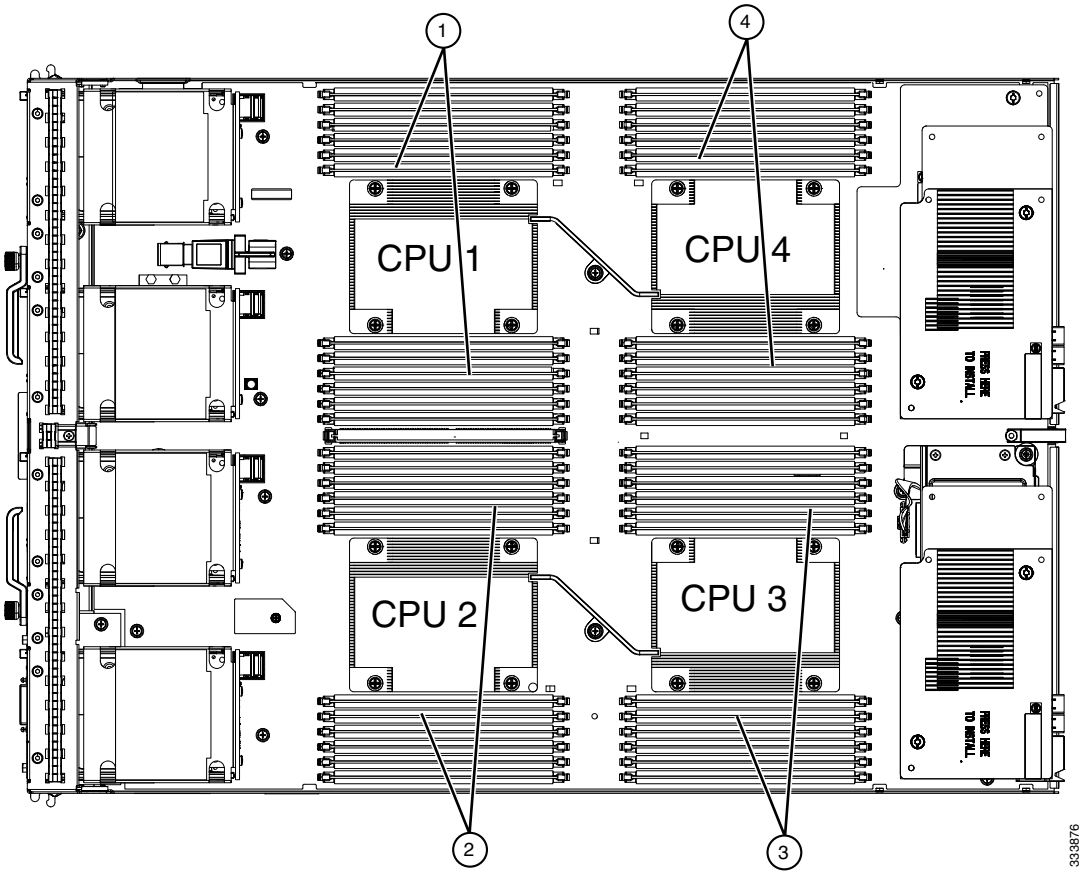
CPU Channel	Bank 0	Bank 1	Bank 2
A	1	4	7
B	2	5[1]	8
C	3	6	9
D	empty	empty	empty

Notes
1. Not recommended for performance reasons

DIMM Physical Layout

The overall DIMM and CPU physical layout is shown in ***Figure 7***.

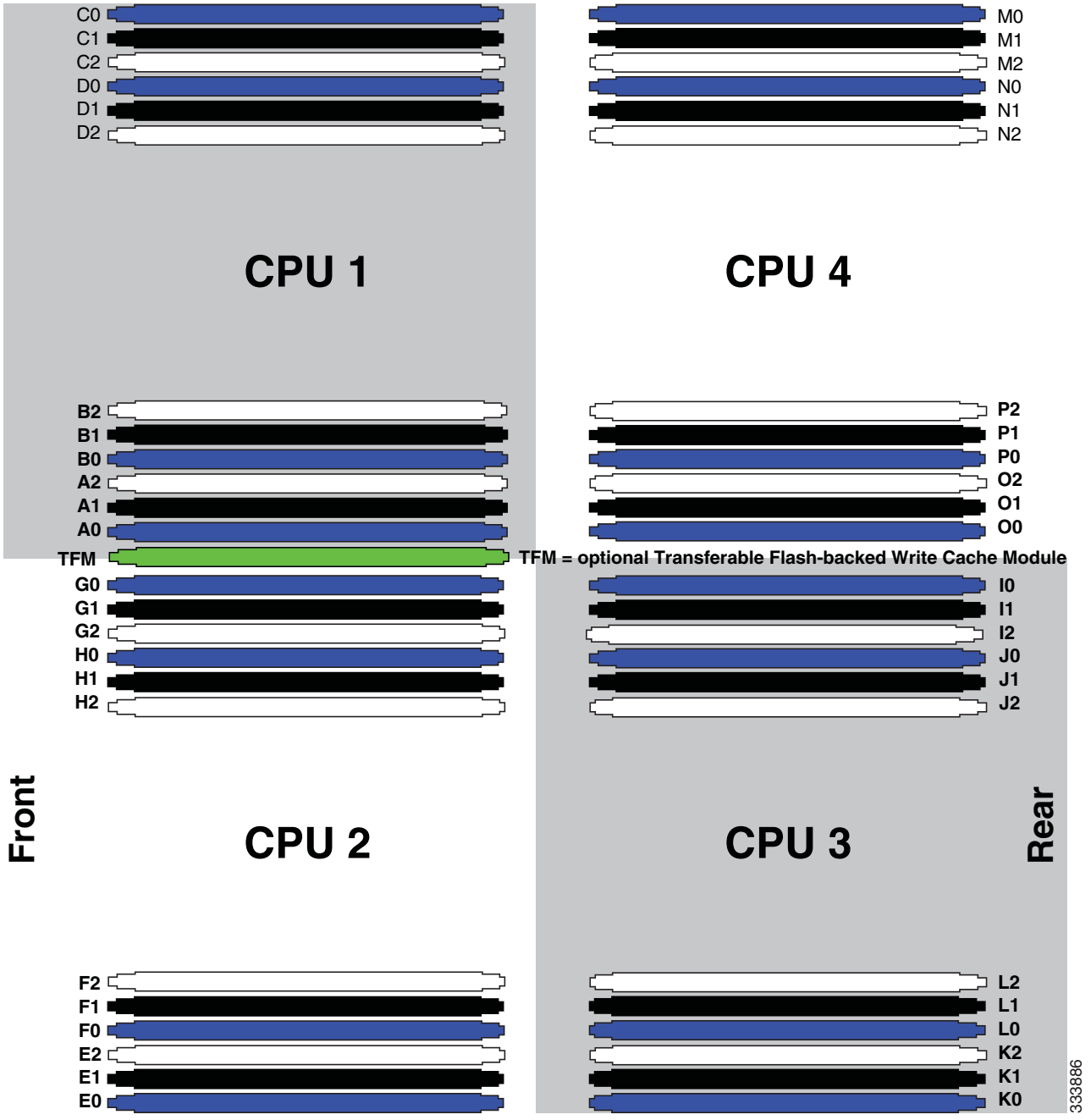
Figure 7 DIMM and CPU Layout



1	Channel A - D DIMMs for CPU 1	**3**	Channel I - L DIMMs for CPU 3
2	Channel E - H DIMMs for CPU 2	**4**	Channels M - P DIMMs for CPU 4

Figure 8 shows how channels are physically laid out on the blade server. The DIMM slots are contiguous to their associated CPU.

Figure 8 Physical Representation of DIMMs and CPUs



Network Connectivity

This section shows how the supported adapter card configurations for the B420 M3 connect to the Fabric Extender modules in the 5108 blade server chassis.

There are three configurable adapter slots on the B420 M3. One slot supports only the VIC 1240 adapter, and two additional slots accommodate Cisco and Emulex or QLogic adapters, as well as Cisco UCS Storage Accelerator adapters. ***Table 8 on page 16*** and ***Table 9 on page 17*** show supported adapter configurations. You must install at least one adapter in one of the three adapter slots.

"Adapter 1," "Adapter 2," and "Adapter 3" refer to the UCSM naming convention for the adapter slots (this document uses the UCSM naming convention). In the server BIOS and on the motherboard, the corresponding slots are labeled as "mLOM," "Mezz 1," and "Mezz 2," respectively. See ***Table 7***.

Table 26 Adapter Slot Naming

Server BIOS and Motherboard Slot Naming	UCSM Slot Naming
mLOM (VIC 1240 only)	Adapter 1
Mezz1	Adapter 2
Mezz2	Adapter 3

Total bandwidth is a function of the Fabric Extender, the adapter, and the adapter slot, as shown in ***Table 27*** and ***Table 28***.

Table 27 Maximum Bandwidth Using Dual Fabric Extenders (FEXs)

FEX Model	Maximum Bandwidth Using Dual FEXs
2208XP	160 Gb
2204XP	80 Gb
2104XP	20 Gb

Table 28 Maximum Bandwidth for Each of the Three Adapter Slots

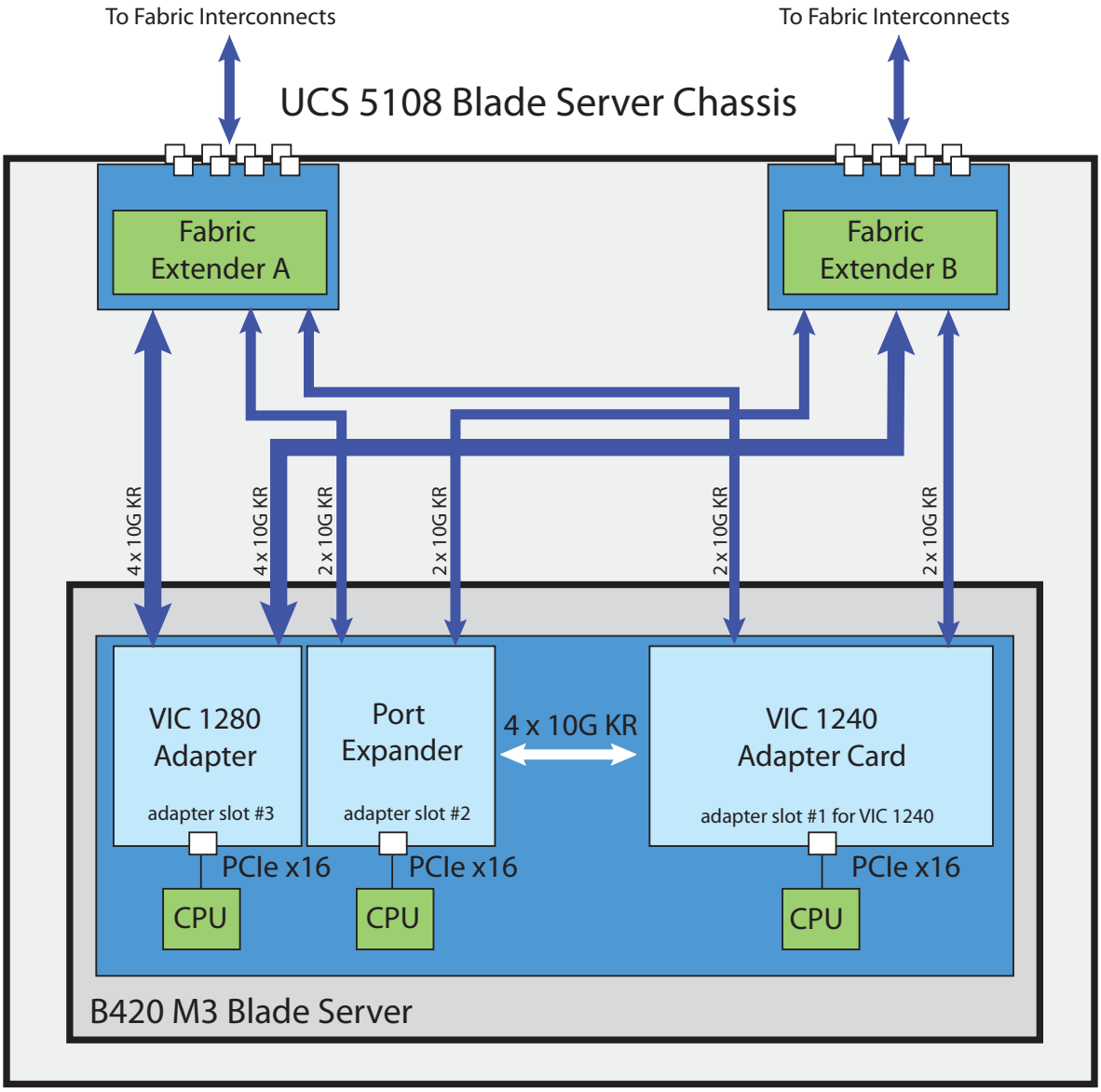
Adapter Slot	Maximum Bandwidth Using Dual FEXs
VIC 1240 (Adapter 1) slot	40 Gb
Adapter 2 Slot	40 Gb
Adapter 3 Slot	80 Gb

Figure 9 shows the configuration for maximum bandwidth, where the following ports are routed to Fabric Extender Modules A and B inside the 5108 blade server chassis:

- Two 2 x 10G KR ports from the VIC 1240 adapter
- Two 2 x 10G KR ports from the Port Expander
- Two 4 x 10G KR ports from the VIC 1280 adapter

The resulting aggregate bandwidth is 160 Gb (80 Gb to each Fabric Extender).

Figure 9 UCS B420 M3 Connections to the Fabric Extenders



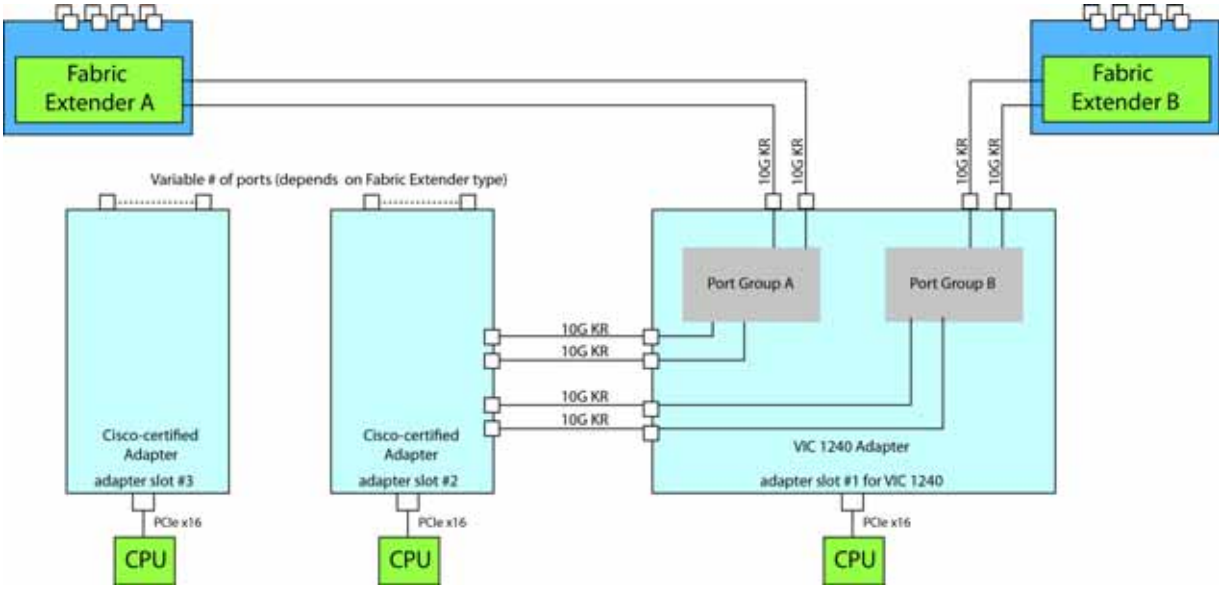
VIC 1240 and Port Expander for VIC 1240

Adapter slot 1 is dedicated to the VIC 1240 adapter, and no other adapter card can be installed in this slot. There are two groups of four ports on the VIC 1240:

- Two ports of the first group and two ports of the second group are wired through the UCS 5108 Blade Server chassis to Fabric Extender A and Fabric Extender B.
- The other two ports of each group are wired to adapter slot 2. The VIC 1240 adapter senses the type of adapter installed in adapter slot 2. If a Port Expander for VIC 1240 is installed in adapter slot 2, the four 10G KR ports between the adapters are used for port expansion; otherwise they are unused.

With the Port Expander for VIC 1240 installed, there are up to eight (depending on the Fabric Extender installed) 10 Gb network interfaces, as represented in ***Figure 10***.

Figure 10 VIC 1240 Connectivity



Connectivity Using the Cisco UCS 2208XP Fabric Extender

The connectivity options shown in ***Figure 11*** through ***Figure 21*** are summarized in ***Table 29***.

Table 29 Supported Adapter[1] Combinations Using the 2208XP FEX[2]

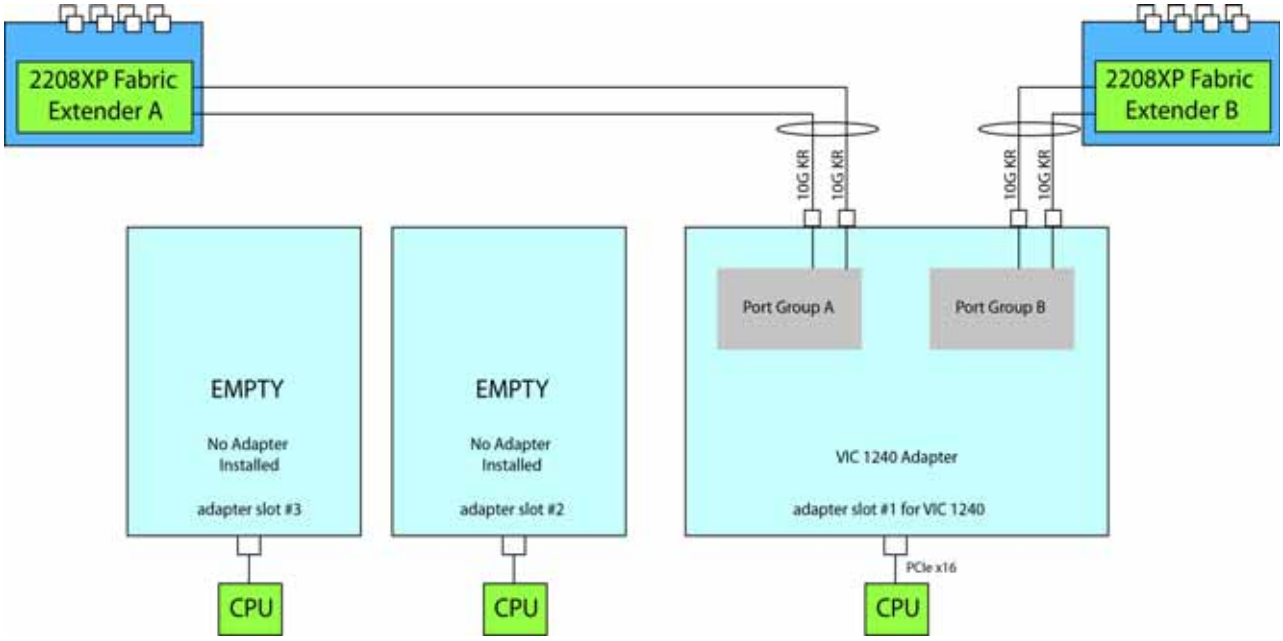
Adapter Slot 1	Adapter Slot 2	Adapter Slot 3	Total Available Bandwidth
			2 x 2208 XP
VIC 1240	Not populated	Not populated	40 Gb ***Figure 11 on page 44***
VIC 1240	Not populated	VIC 1280	120 Gb ***Figure 12 on page 44***
Not populated	Not populated	VIC 1280	80 Gb ***Figure 13 on page 45***
VIC 1240	Not populated	Emulex or QLogic adapter	60 Gb ***Figure 14 on page 45***
VIC 1240	Port Expander Card for VIC 1240	Not populated	80 Gb ***Figure 15 on page 46***
Not populated	Not populated	Emulex or QLogic adapter	20 Gb ***Figure 16 on page 47***
Not populated	Emulex or QLogic adapter	Emulex or QLogic adapter	40 Gb ***Figure 17 on page 47***
VIC 1240	Port Expander Card for VIC 1240	VIC 1280	160 Gb ***Figure 18 on page 48***
VIC 1240	Not populated	Cisco UCS Storage Accelerator	40 Gb ***Figure 19 on page 49***
VIC 1240	Cisco UCS Storage Accelerator[3]	Cisco UCS Storage Accelerator[3]	40 Gb ***Figure 20 on page 49***
Not populated	Cisco UCS Storage Accelerator	VIC 1280	80 Gb ***Figure 21 on page 50***
VIC 1240	Cisco UCS Storage Accelerator	VIC 1280	120 Gb ***Figure 22 on page 51***

Notes

1. In the server BIOS and on the motherboard, “Adapter 1,” “Adapter 2,” and “Adapter 3” are labeled as “mLOM,” “Mezz 1,” and “Mezz 2,” respectively
2. Not all combinations are supported in 2-CPU configurations (see ***Table 9 on page 17***)
3. This combination requires that both Storage Accelerators be identical.

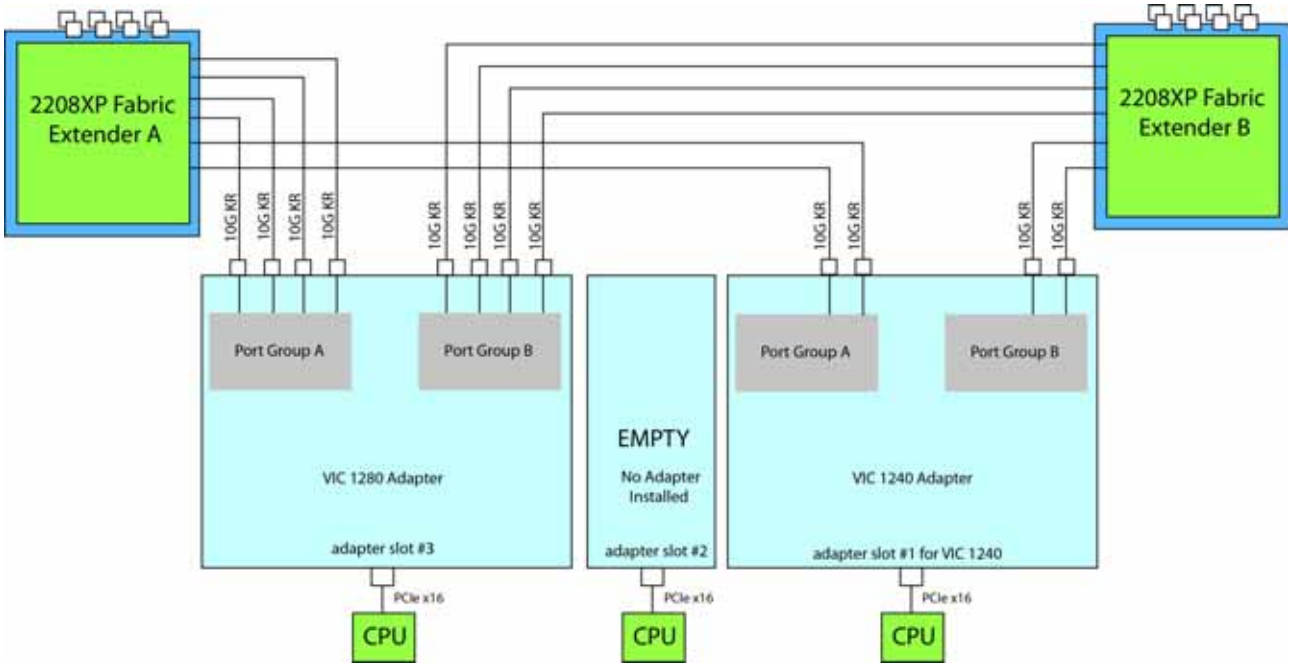
In ***Figure 11***, two ports from the VIC 1240 adapter are channeled to 2208XP Fabric Extender A and two are channeled to 2208XP Fabric Extender B. The result is 20 Gb of bandwidth to each Fabric Extender.

Figure 11 VIC 1240 (adapter slots 2 and 3 empty)



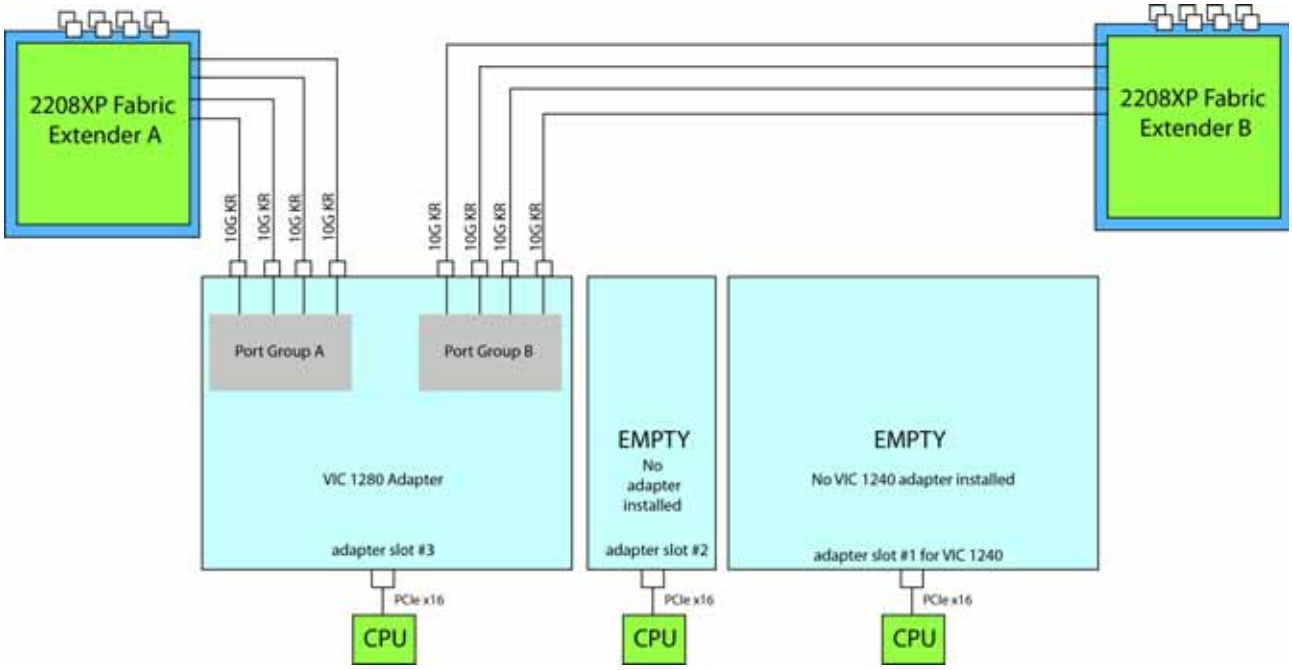
In ***Figure 12***, two ports from the VIC 1240 are channeled to 2208XP Fabric Extender A and two are channeled to 2208XP Fabric Extender B. Adapter slot 2 is empty. The VIC 1280 installed in adapter slot 3 channels four ports to each of the Fabric Extenders. The result is 60 Gb of bandwidth to each Fabric Extender.

Figure 12 VIC 1240 and VIC 1280 (adapter slot 2 empty)



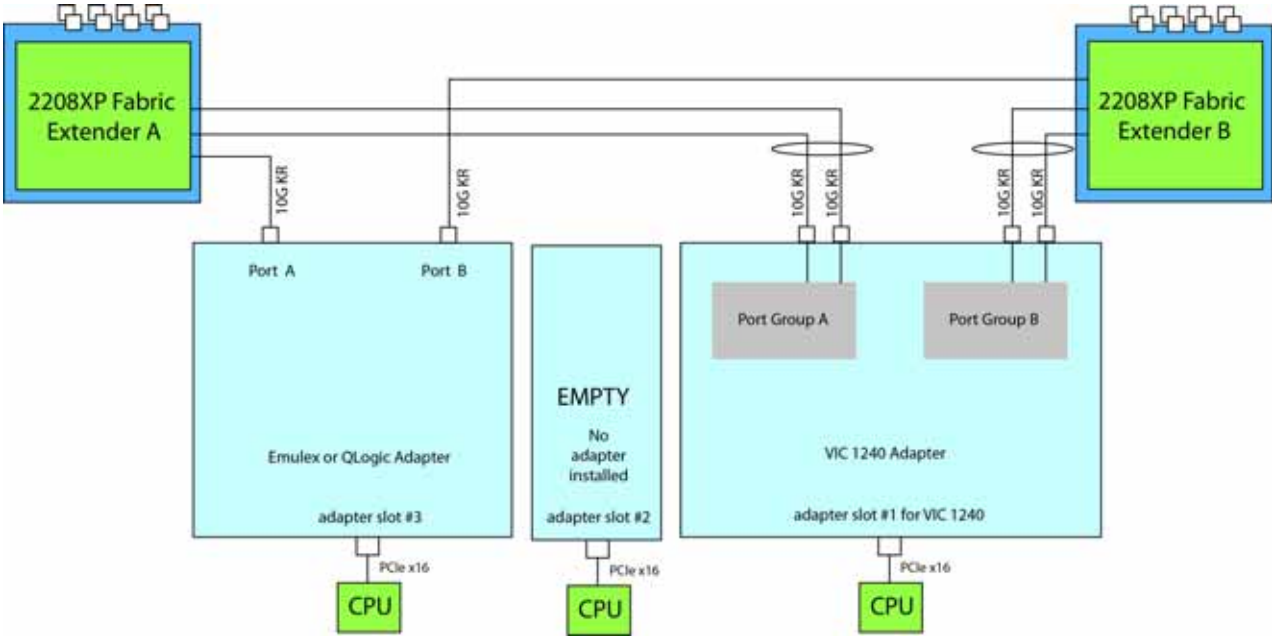
In ***Figure 13***, four ports from the VIC 1280 are channeled to 2208XP Fabric Extender A and four are channeled to 2208XP Fabric Extender B. The VIC 1240 slot is empty and adapter slot 2 is empty. The result is 40 Gb of bandwidth to each Fabric Extender. This is not supported in 2-CPU configurations.

Figure 13 VIC 1280 (VIC 1240 slot empty and adapter slot 2 empty)



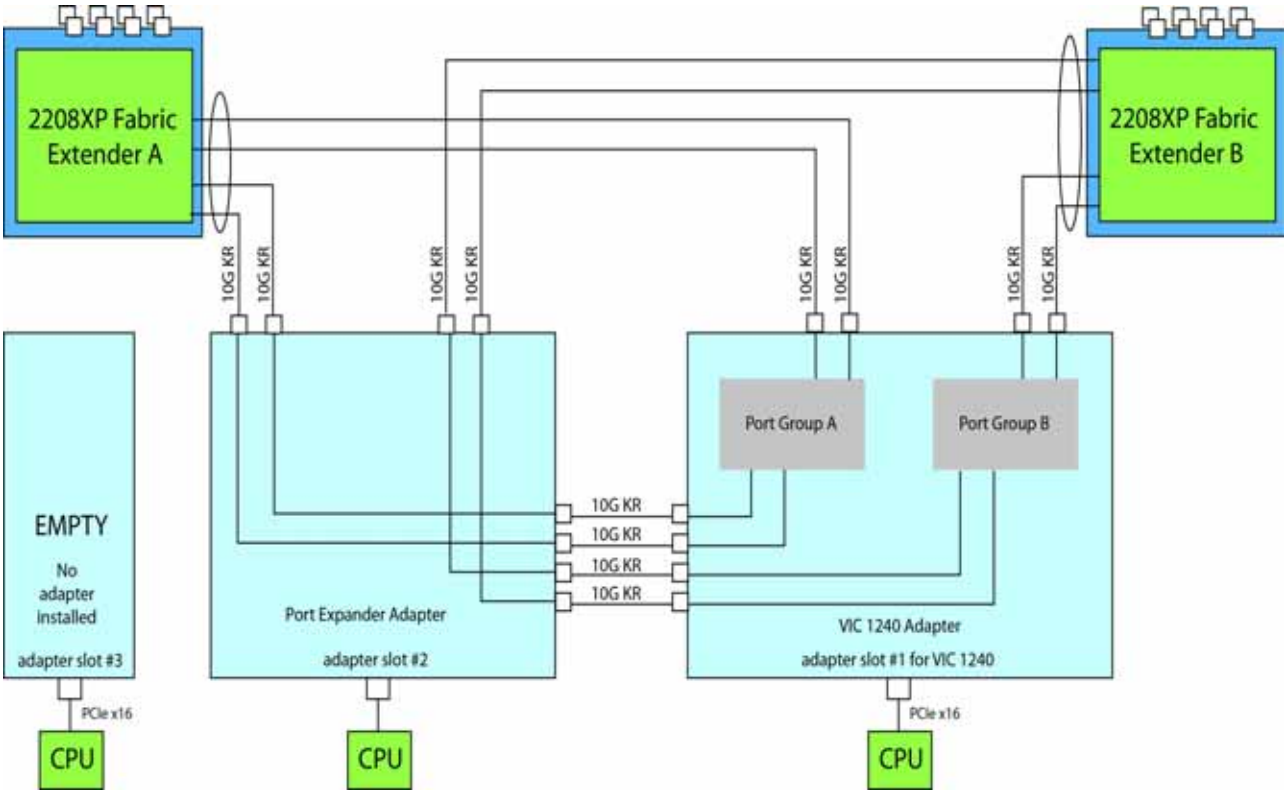
In ***Figure 14***, two ports from the VIC 1240 are channeled to 2208XP Fabric Extender A and two are channeled to 2208XP Fabric Extender B. Adapter slot 2 is empty. The Emulex or QLogic adapter installed in adapter slot 3 also channels one port to each of the Fabric Extenders. The result is 30 Gb of bandwidth to each Fabric Extender.

Figure 14 VIC 1240 and One Emulex or QLogic Adapter (adapter slot 2 empty)



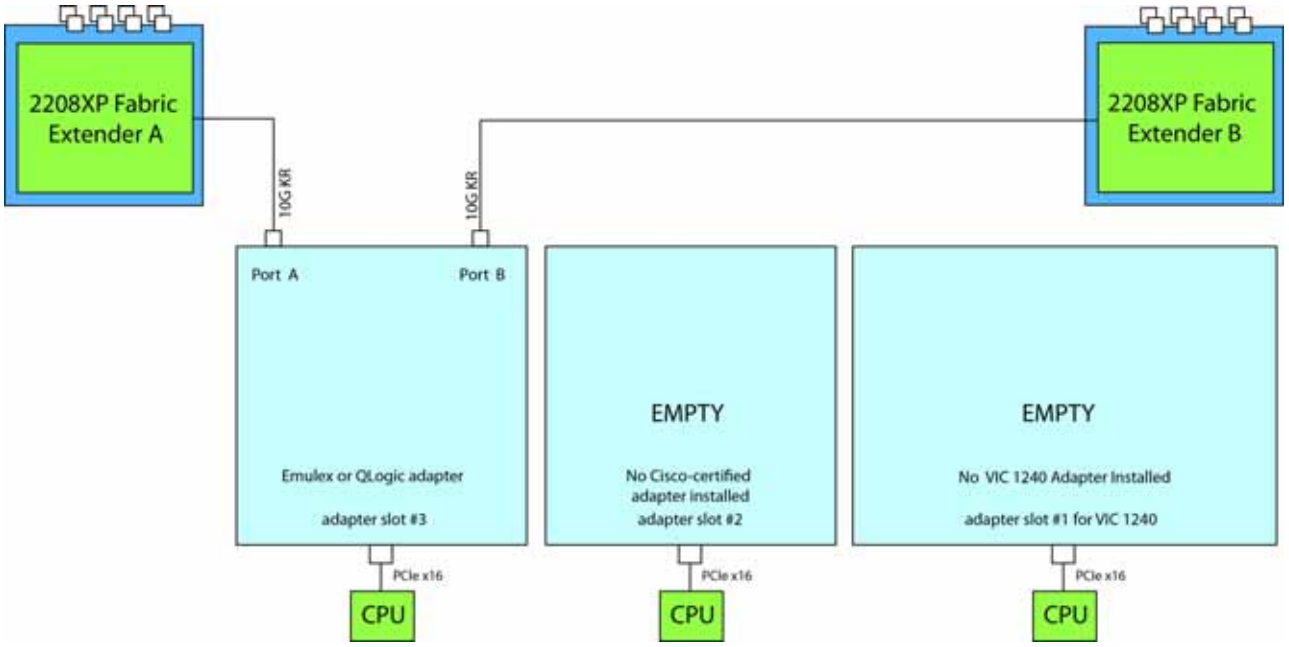
In ***Figure 15***, two ports from the VIC 1240 are channeled to 2208XP Fabric Extender A and two are channeled to 2208XP Fabric Extender B. The Port Expander Card for VIC 1240 installed in adapter slot 2 acts as a pass-through device, channeling two ports to each of the Fabric Extenders. Adapter slot 3 is empty. The result is 40 Gb of bandwidth to each Fabric Extender.

Figure 15 VIC 1240 and Port Expander for VIC 1240 in Adapter Slot 2 (adapter slot 3 empty)



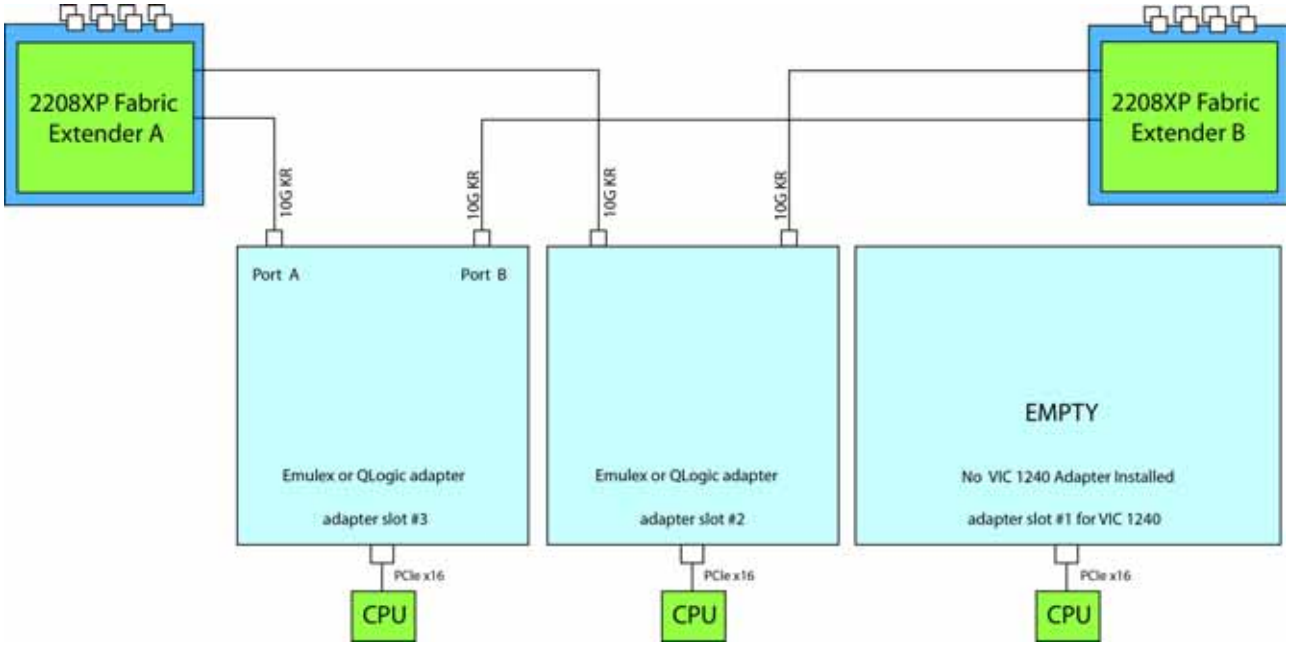
In ***Figure 16***, there is no VIC 1240 installed. In this case, an Emulex or QLogic adapter is installed in adapter slot 3. Ports A and B of the adapter connect to the Fabric Extenders, providing 10 Gb per port.

Figure 16 One Emulex or QLogic Adapter Installed in Adapter Slot 3 (other two slots empty)



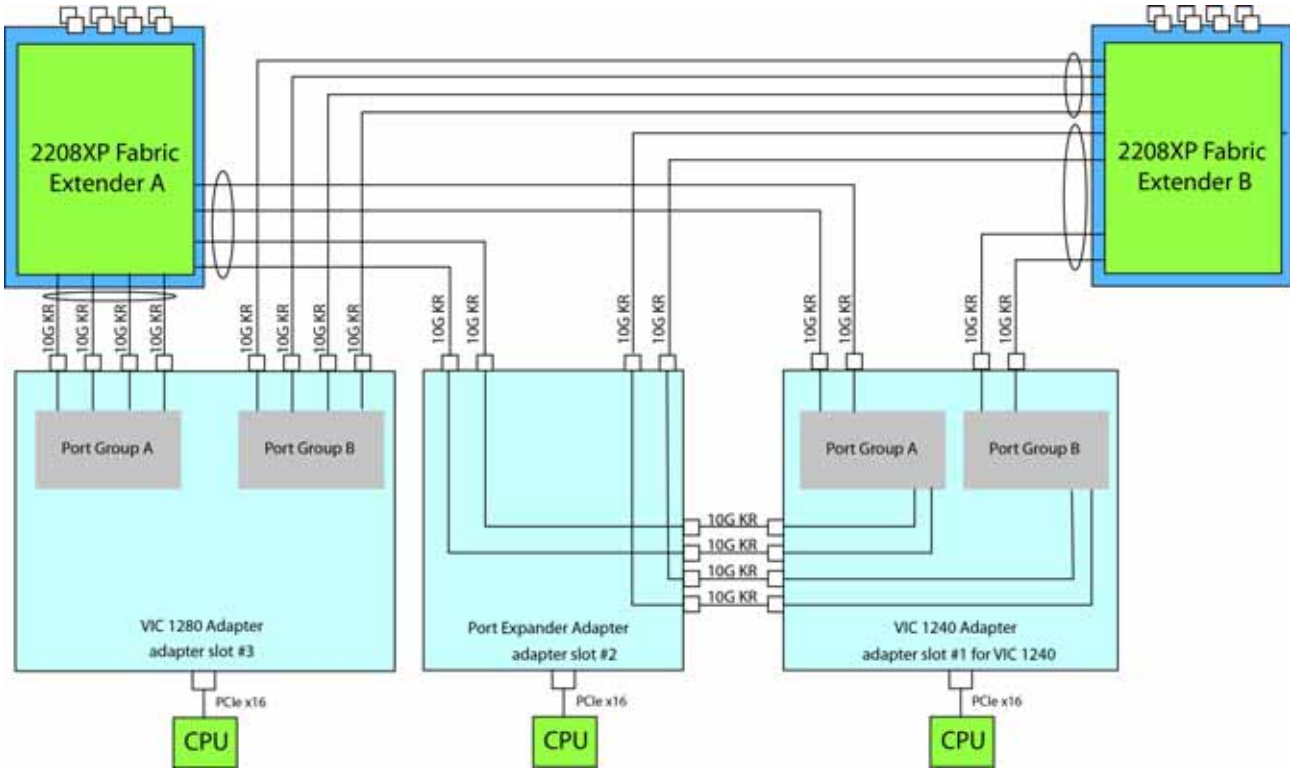
In ***Figure 17***, there is no VIC 1240 installed. In this case, two Emulex or QLogic adapters are installed in adapter slots 2 and 3. Ports A and B of each adapter connect to the Fabric Extenders, providing 20 Gb to each Fabric Extender. This is not supported in 2-CPU configurations.

Figure 17 Two Emulex or QLogic Adapters Installed in Adapter Slots 2 and 3 (no VIC 1240 adapter)



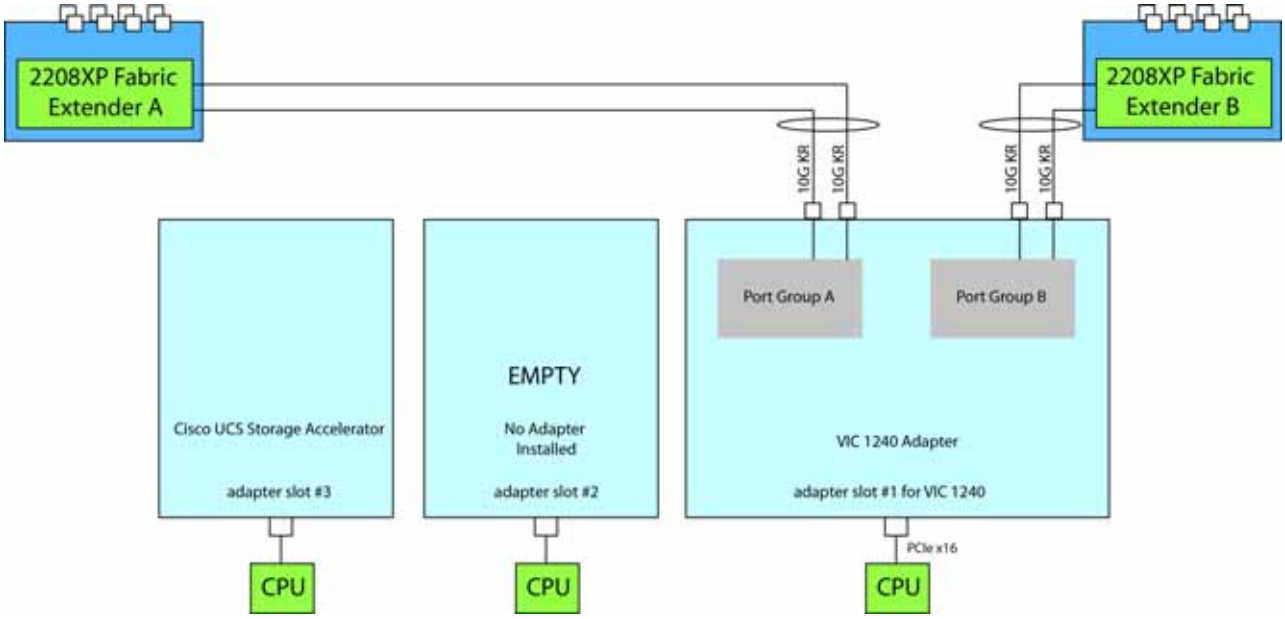
In ***Figure 18***, two ports from the VIC 1240 are channeled to 2208XP Fabric Extender A and two are channeled to 2208XP Fabric Extender B. The Port Expander Card for VIC 1240 installed in adapter slot 2 acts as a pass-through device, channeling two ports to each of the Fabric Extenders. In addition, the VIC 1280 channels four ports to each Fabric Extender. The result is 80 Gb of bandwidth to each Fabric Extender.

Figure 18 VIC 1240, Port Expander for VIC 1240 in Adapter Slot 2, and VIC 1280 in Adapter Slot 3



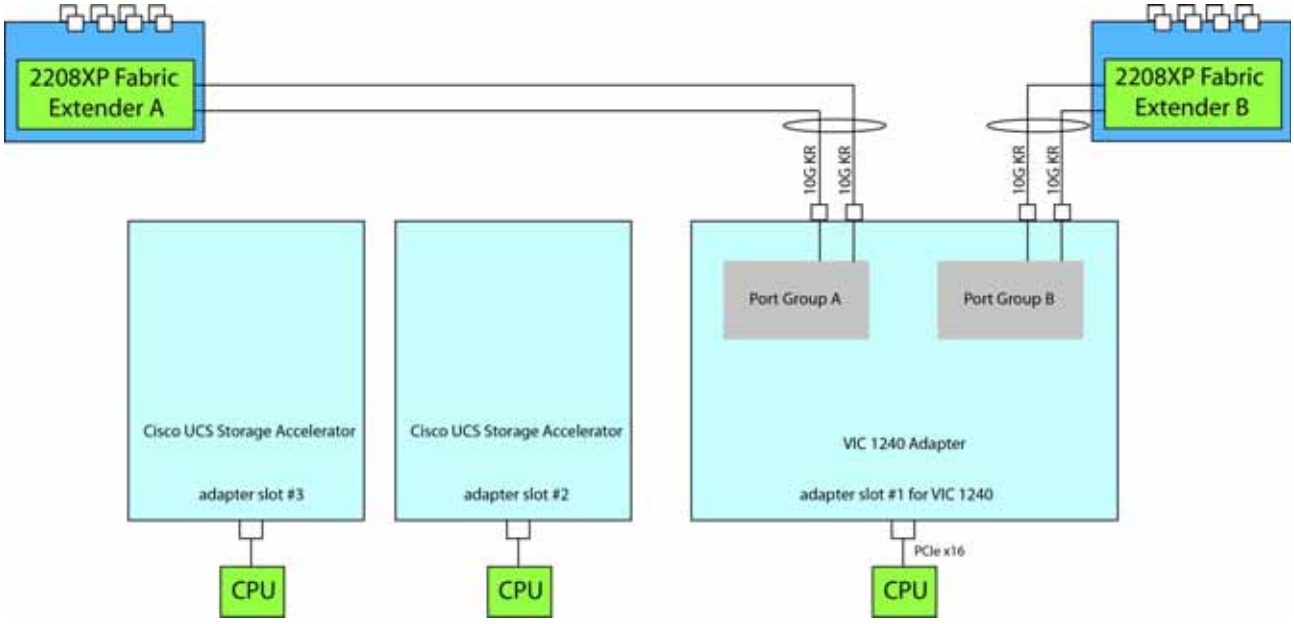
In ***Figure 19***, two ports from the VIC 1240 adapter are channeled to 2208XP Fabric Extender A and two are channeled to 2208XP Fabric Extender B. The result is 20 Gb of bandwidth to each Fabric Extender. A Cisco UCS Storage Accelerator adapter is installed in slot 2, but provides no network connectivity.

Figure 19 VIC 1240 (Cisco UCS Storage Accelerator in slot 3 and adapter slot 2 empty)



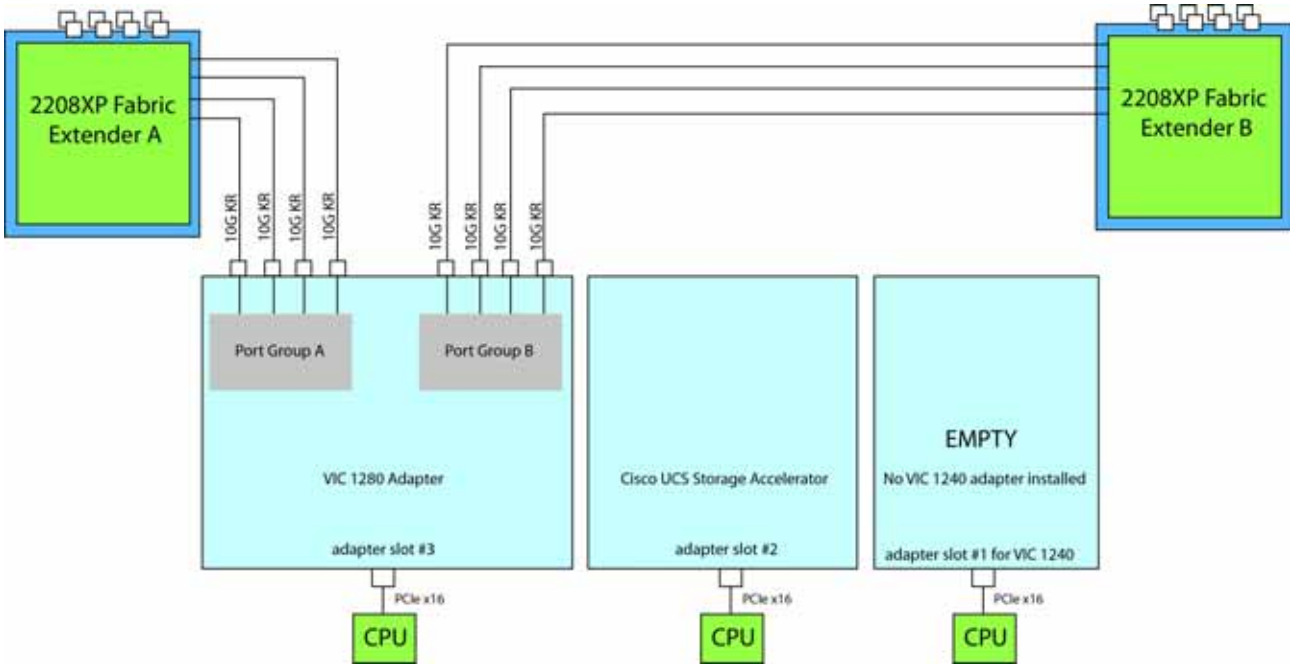
In ***Figure 20***, two ports from the VIC 1240 adapter are channeled to 2208XP Fabric Extender A and two are channeled to 2208XP Fabric Extender B. The result is 20 Gb of bandwidth to each Fabric Extender. Two *identical* Cisco UCS Storage Accelerator adapters are installed in slots 2 and 3, but provide no network connectivity. This configuration is not supported for 2-CPU systems.

Figure 20 VIC 1240 (Cisco UCS Storage Accelerator in slots 2 and 3)



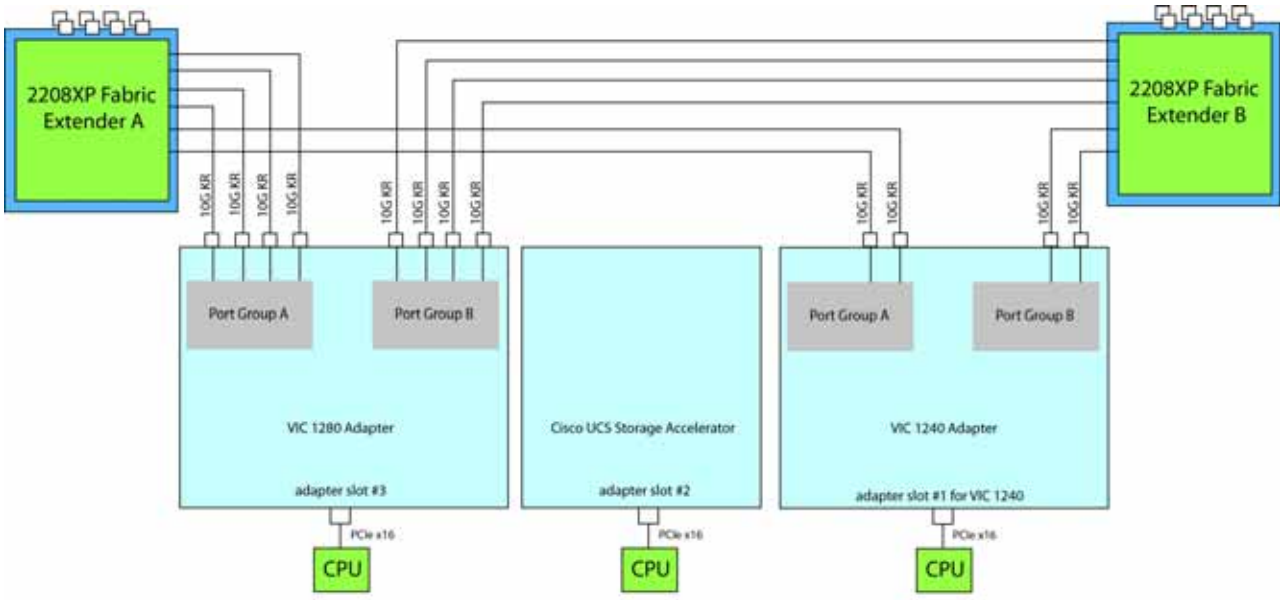
In ***Figure 21***, four ports from the VIC 1280 are channeled to 2208XP Fabric Extender A and four are channeled to 2208XP Fabric Extender B. The VIC 1240 slot is empty and adapter slot 2 contains a Cisco UCS Storage Accelerator (which has no network connectivity). The result is 40 Gb of bandwidth to each Fabric Extender. This configuration is not supported for 2-CPU systems.

Figure 21 VIC 1280 (VIC 1240 slot empty and Cisco UCS Storage Accelerator in adapter slot 2)



In ***Figure 22***, two ports from the VIC 1240 adapter are channeled to 2208XP Fabric Extender A and two are channeled to 2208XP Fabric Extender B. The result is 20 Gb of bandwidth to each Fabric Extender. Four ports from the VIC 1280 are channeled to 2208XP Fabric Extender A and four are channeled to 2208XP Fabric Extender B. The result is 40 Gb of bandwidth to each Fabric Extender. The total bandwidth for the VIC 1240 and VIC 1280 together is 120 Gbs. Adapter slot 2 contains a Cisco UCS Storage Accelerator (which has no network connectivity). This configuration is not supported for 2-CPU systems.

Figure 22 VIC 1280, VIC 1240, and Cisco UCS Storage Accelerator



Connectivity using the Cisco UCS 2204XP Fabric Extender

The connectivity options shown in ***Figure 23*** through ***Figure 30*** are shown in ***Table 30***.

Table 30 Supported Adapter[1] Combinations Using the 2204XP[2]

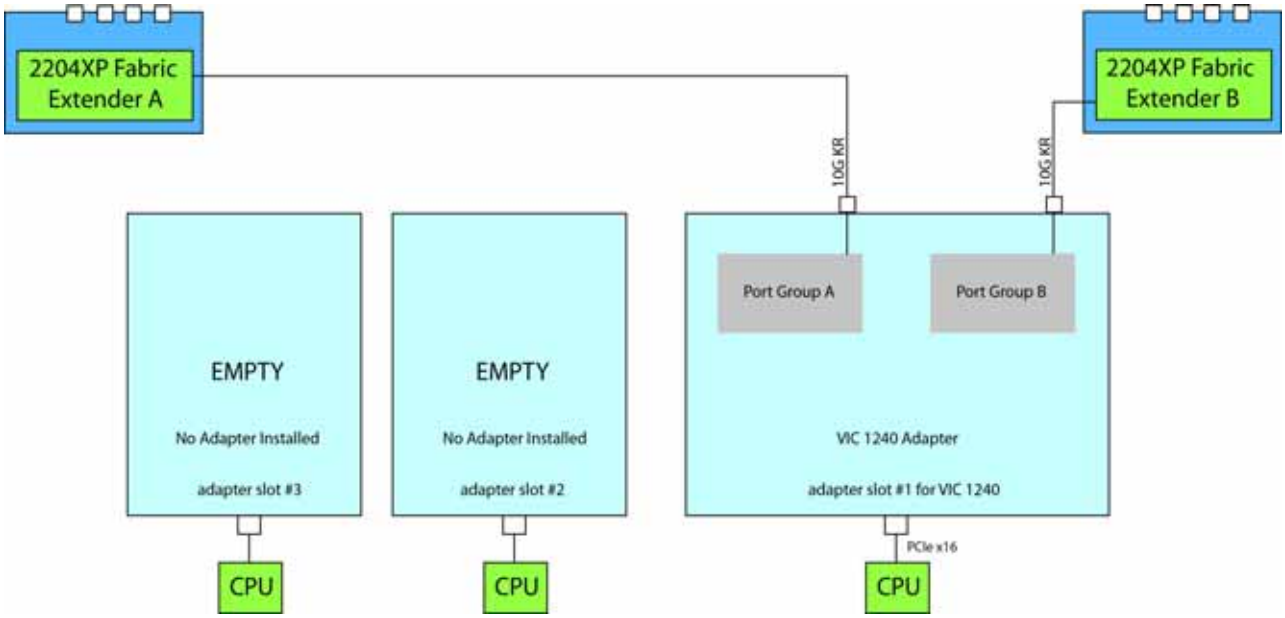
Adapter Slot 1	Adapter Slot 2	Adapter Slot 3	Total Available Bandwidth
			2 x 2204 XP
VIC 1240	Not populated	Not populated	20 Gb ***Figure 23 on page 53***
VIC 1240	Not populated	VIC 1280	60 Gb ***Figure 24 on page 53***
Not populated	Not populated	VIC 1280	40 Gb ***Figure 25 on page 54***
VIC 1240	Not populated	Emulex or QLogic CNA	40 Gb ***Figure 26 on page 54***
VIC 1240	Port Expander Card for VIC 1240	Not populated	40 Gb ***Figure 27 on page 55***
Not populated	Not populated	Emulex or QLogic CNA	20 Gb ***Figure 28 on page 55***
Not populated	Emulex or QLogic CNA	Emulex or QLogic CNA	40 Gb ***Figure 29 on page 56***
VIC 1240	Port Expander Card for VIC 1240	VIC 1280	80 Gb ***Figure 30 on page 57***
VIC 1240	Not populated	Cisco UCS Storage Accelerator	40 Gb ***Figure 31 on page 58***
VIC 1240	Cisco UCS Storage Accelerator[3]	Cisco UCS Storage Accelerator[3]	40 Gb ***Figure 32 on page 58***
Not populated	Cisco UCS Storage Accelerator	VIC 1280	80 Gb ***Figure 33 on page 59***
VIC 1240	Cisco UCS Storage Accelerator	VIC 1280	60 Gb ***Figure 34 on page 60***

Notes

1. In the server BIOS and on the motherboard, “Adapter 1,” “Adapter 2,” and “Adapter 3” are labeled as “mLOM,” “Mezz 1,” and “Mezz 2,” respectively
2. Not all combinations are supported in 2-CPU configurations (see ***Table 9 on page 17***)
3. This combination requires that both Storage Accelerators be identical.

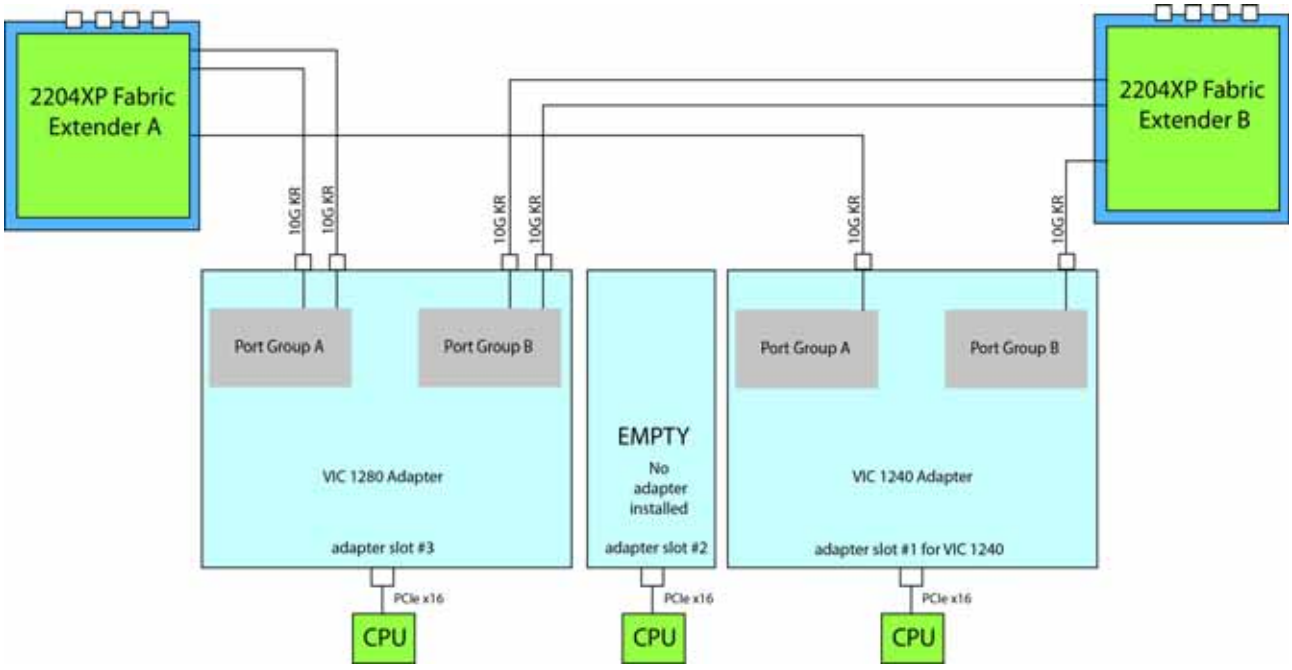
In ***Figure 23***, one port from the VIC 1240 is channeled to 2204XP Fabric Extender A and one is channeled to 2204XP Fabric Extender B. The result is 10 Gb of bandwidth to each Fabric Extender.

Figure 23 VIC 1240 (adapter slots 2 and 3 empty)



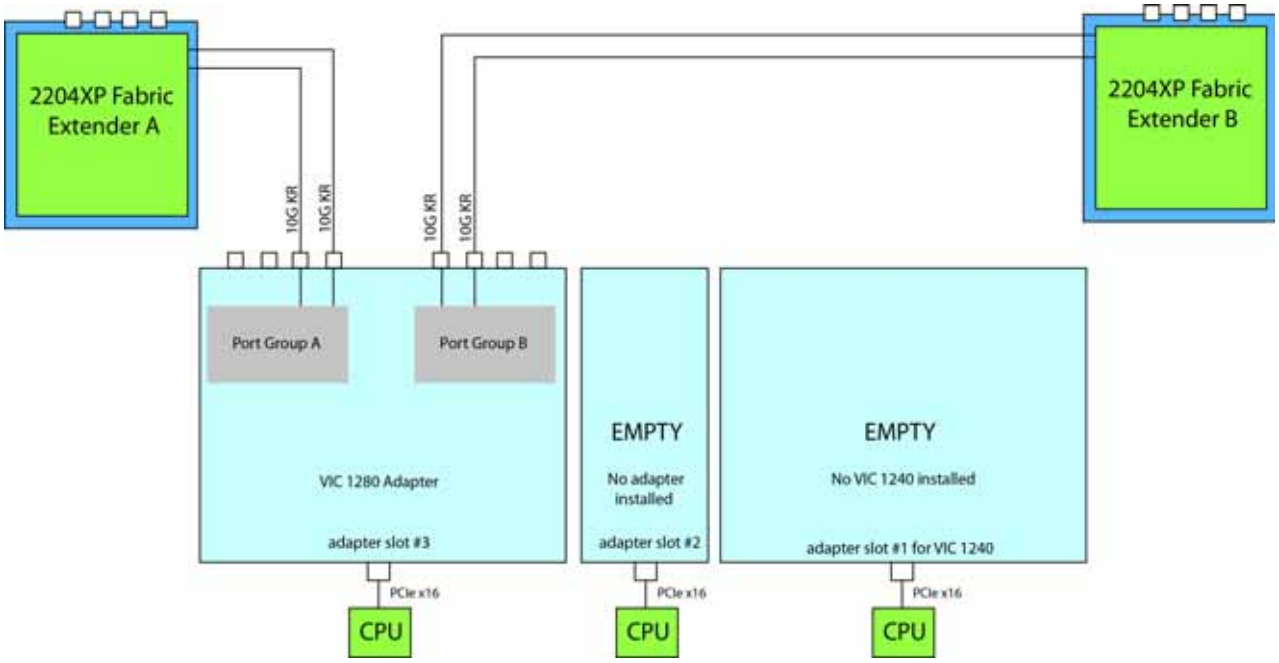
In ***Figure 24***, one port from the VIC 1240 is channeled to 2204XP Fabric Extender A and one is channeled to 2204XP Fabric Extender B. Adapter slot 2 is empty. The VIC 1280 installed in adapter slot 3 channels two ports to each of the Fabric Extenders. The result is 30 Gb of bandwidth to each Fabric Extender.

Figure 24 VIC 1240 and VIC 1280 (adapter slot 2 empty)



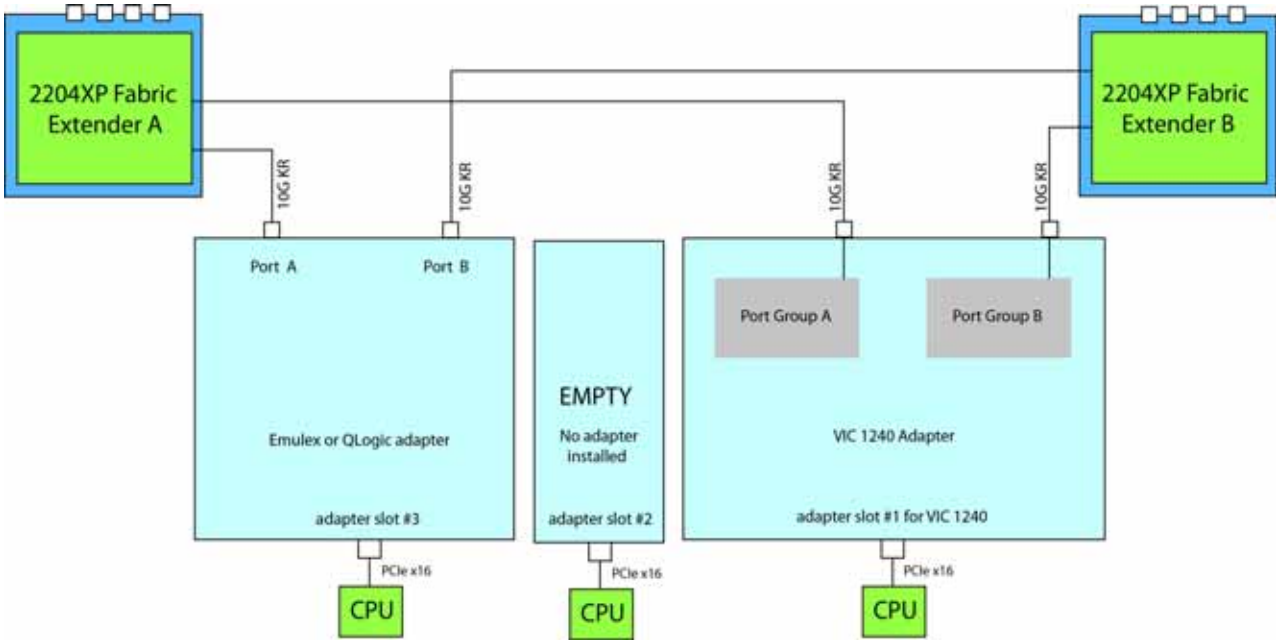
In *Figure 25*, two ports from the VIC 1280 are channeled to 2204XP Fabric Extender A and two are channeled to 2204XP Fabric Extender B. The VIC 1240 slot is empty and adapter slot 2 is empty. The result is 20 Gb of bandwidth to each Fabric Extender. This is not supported in 2-CPU configurations.

Figure 25 VIC 1280 in Adapter Slot 3 (VIC 1240 slot empty and adapter slot 2 empty)



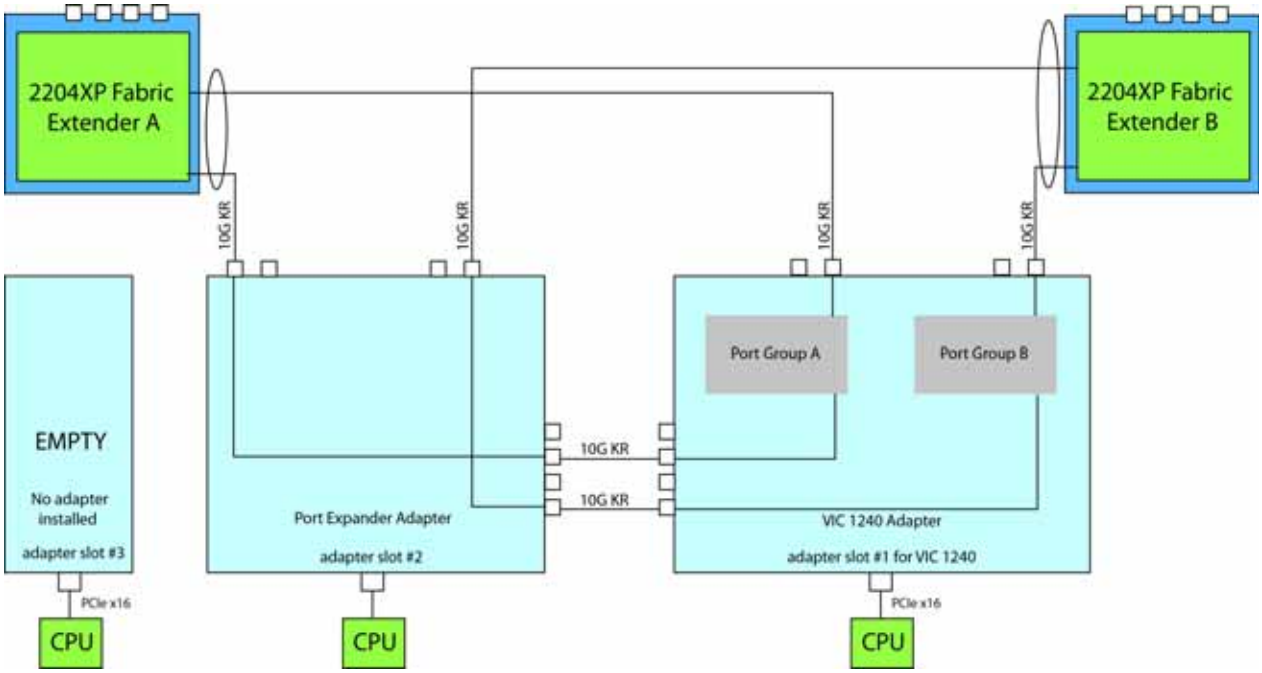
In *Figure 26*, one port from the VIC 1240 is channeled to 2204XP Fabric Extender A and one is channeled to 2204XP Fabric Extender B. Adapter slot 2 is empty. The Emulex or QLogic adapter in adapter slot 3 also channels one port to each of the Fabric Extenders. The result is 20 Gb of bandwidth to each Fabric Extender.

Figure 26 VIC 1240 and One Emulex or QLogic Adapter in Adapter Slot 3 (adapter slot 2 empty)



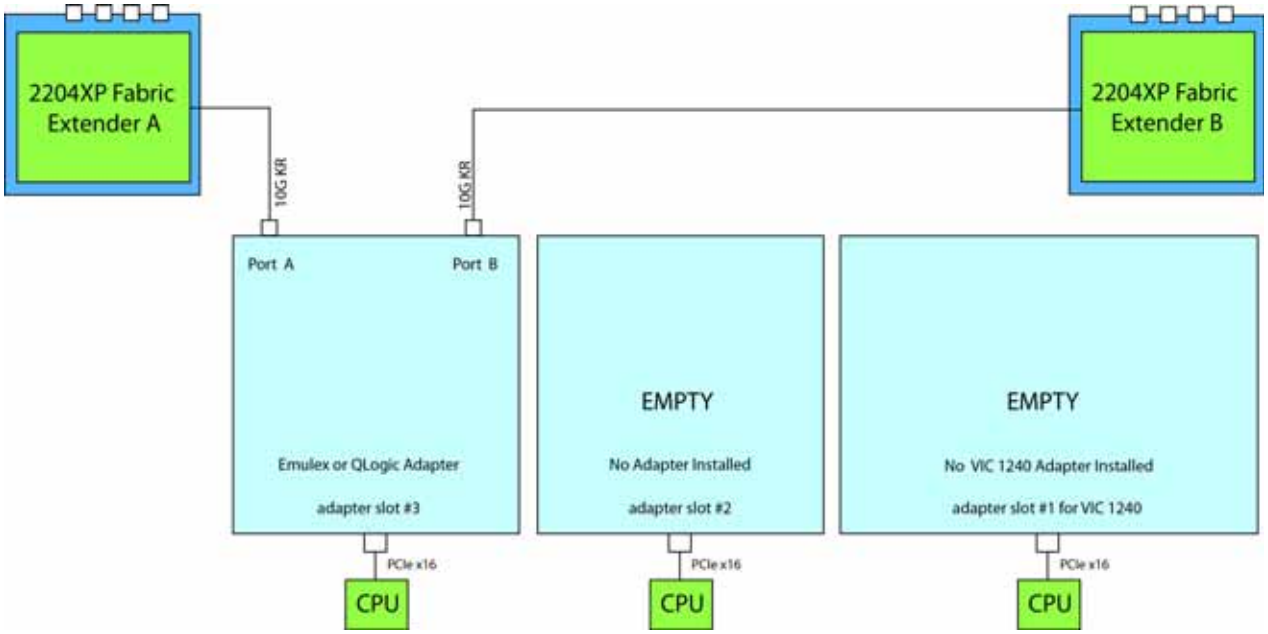
In *Figure 27*, one port from the VIC 1240 is channeled to 2204XP Fabric Extender A and one is channeled to 2204XP Fabric Extender B. The Port Expander Card for VIC 1240 installed in adapter slot 2 acts as a pass-through device, channeling one port to each of the Fabric Extenders. Adapter slot 3 is empty. The result is 20 Gb of bandwidth to each Fabric Extender.

Figure 27 VIC 1240 and Port Expander for VIC 1240 in Adapter Slot 2 (adapter slot 3 empty)



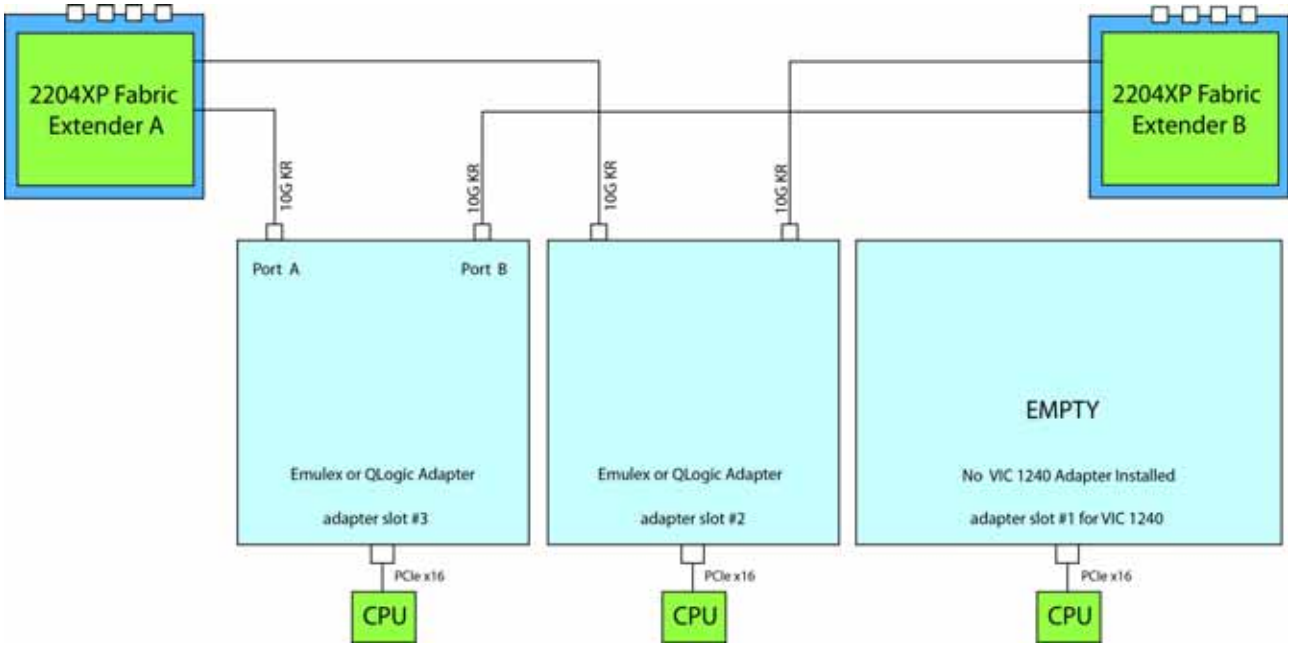
In *Figure 28*, there is no VIC 1240 and no adapter installed in slot 2. In this case, an Emulex or QLogic adapter is installed in adapter slot 3. Ports A and B of the adapter card connect to the Fabric Extenders, providing 10 Gb per port.

Figure 28 One Emulex or QLogic Adapter in Adapter Slot 3 (VIC 1240 and adapter slot 2 empty)



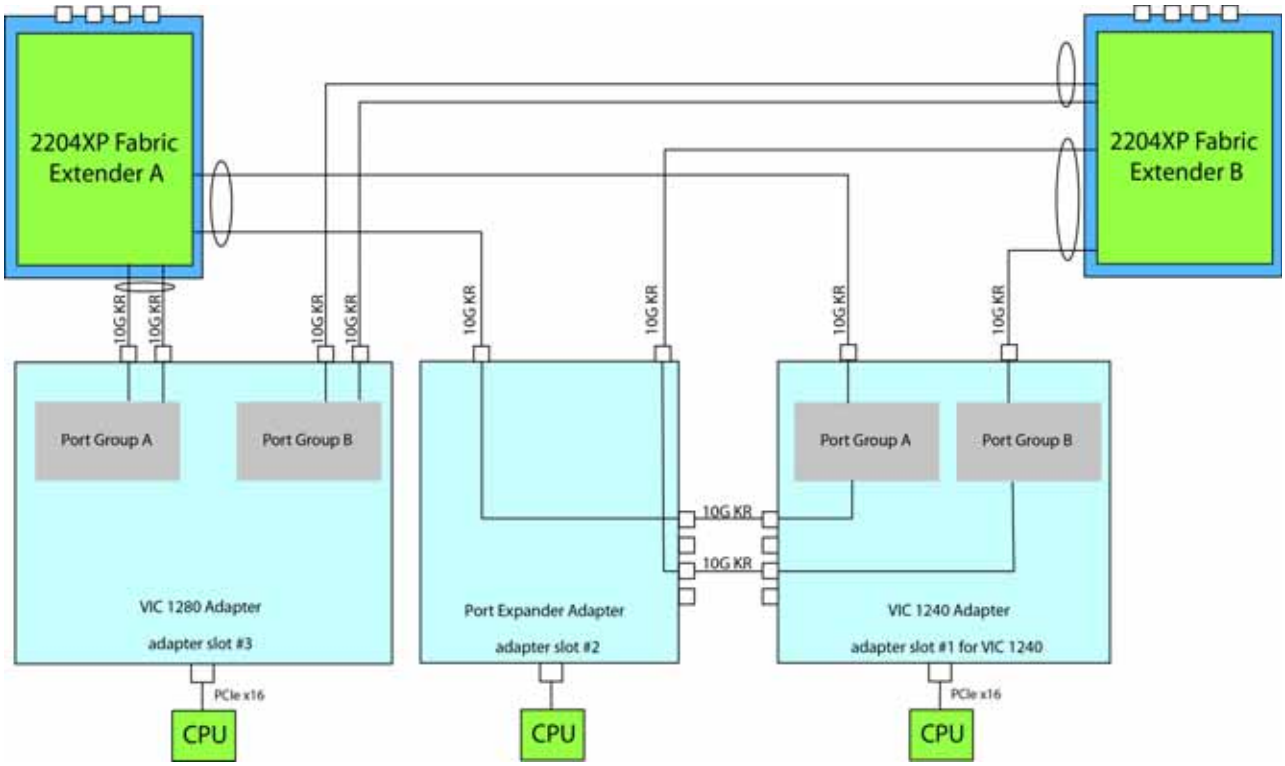
In ***Figure 29***, there is no VIC 1240. Two Emulex or QLogic adapters are installed, one in each of the adapter slots. Ports A and B of each adapter card connect to the Fabric Extenders, providing 20 Gb to each Fabric Extender. This configuration is not supported for 2-CPU systems.

Figure 29 Two Emulex or QLogic Adapters (no VIC 1240)



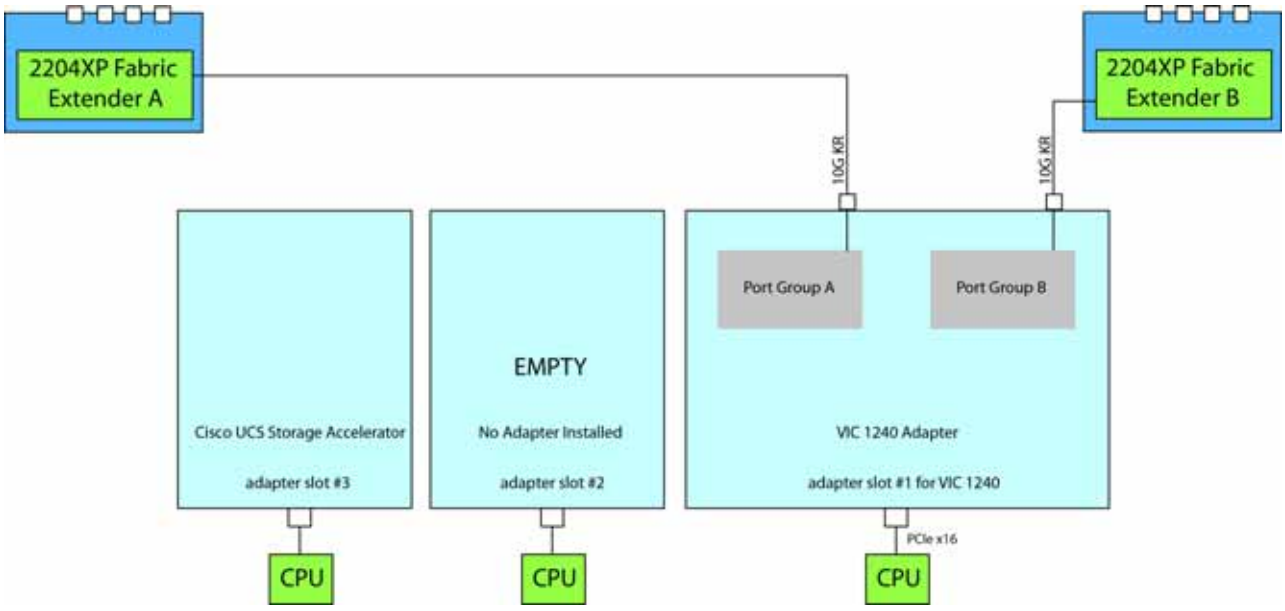
In ***Figure 30***, one port from the VIC 1240 is channeled to 2204XP Fabric Extender A and one is channeled to 2204XP Fabric Extender B. The Port Expander Card for VIC 1240 installed in adapter slot 2 acts as a pass-through device, channeling one port to each of the Fabric Extenders. In addition, the VIC 1280 channels two ports to each Fabric Extender. The result is 40 Gb of bandwidth to each Fabric Extender.

Figure 30 VIC 1240, Port Expander for VIC 1240, and VIC 1280



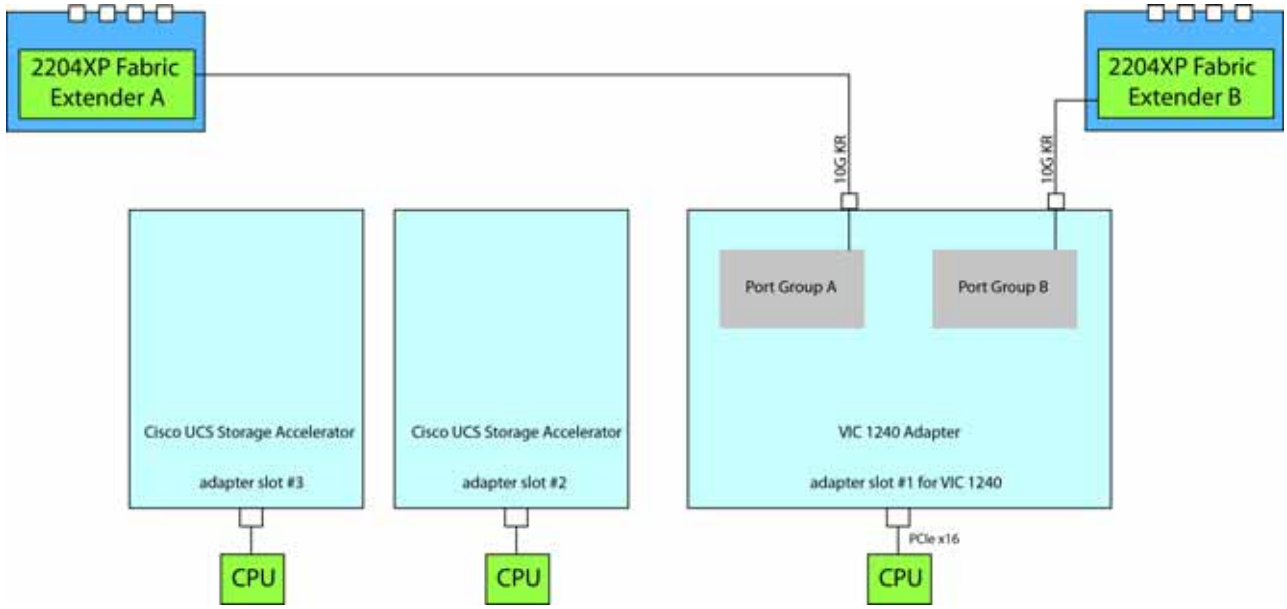
In ***Figure 31***, one port from the VIC 1240 is channeled to 2204XP Fabric Extender A and one is channeled to 2204XP Fabric Extender B. The result is 10 Gb of bandwidth to each Fabric Extender. A Cisco UCS Storage Accelerator adapter is installed in slot 2, but provides no network connectivity.

Figure 31 VIC 1240 (Cisco UCS Storage Accelerator in slot 3, slot 2 empty)



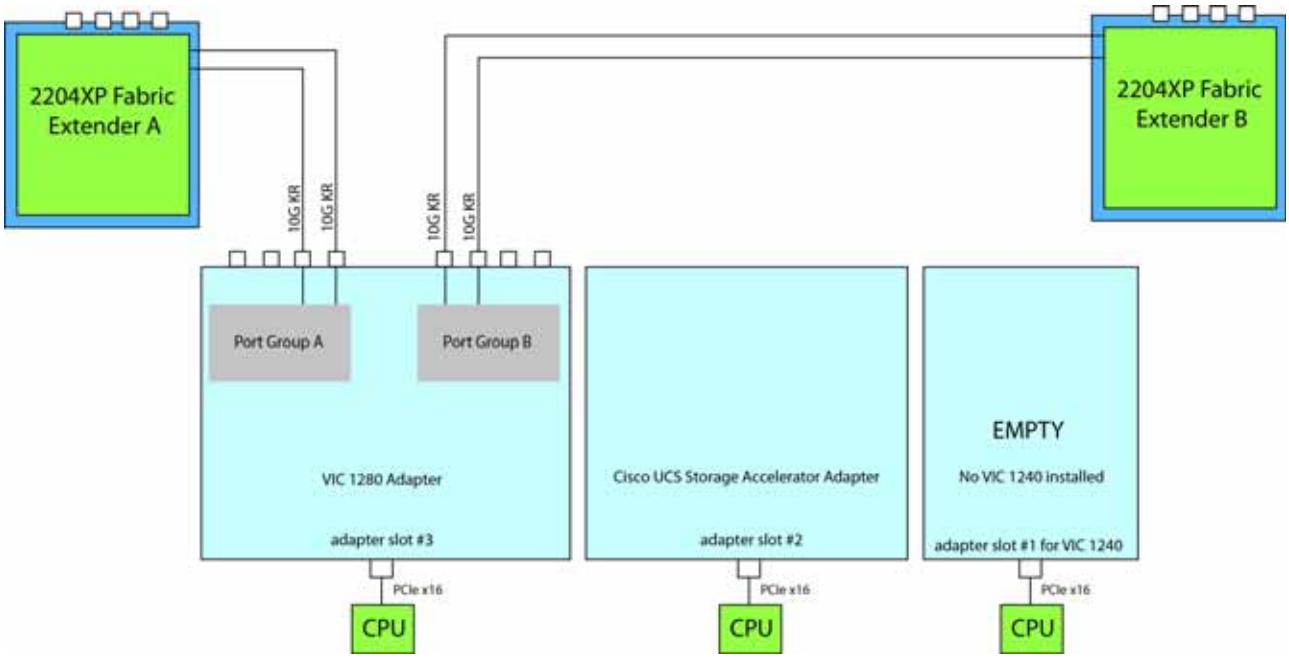
In ***Figure 32***, one port from the VIC 1240 is channeled to 2204XP Fabric Extender A and one is channeled to 2204XP Fabric Extender B. The result is 10 Gb of bandwidth to each Fabric Extender. Two *identical* Cisco UCS Storage Accelerator adapters are installed in slots 2 and 3, but provide no network connectivity. This configuration is not supported for 2-CPU systems.

Figure 32 VIC 1240 (Cisco UCS Storage Accelerator in slots 2 and 3)



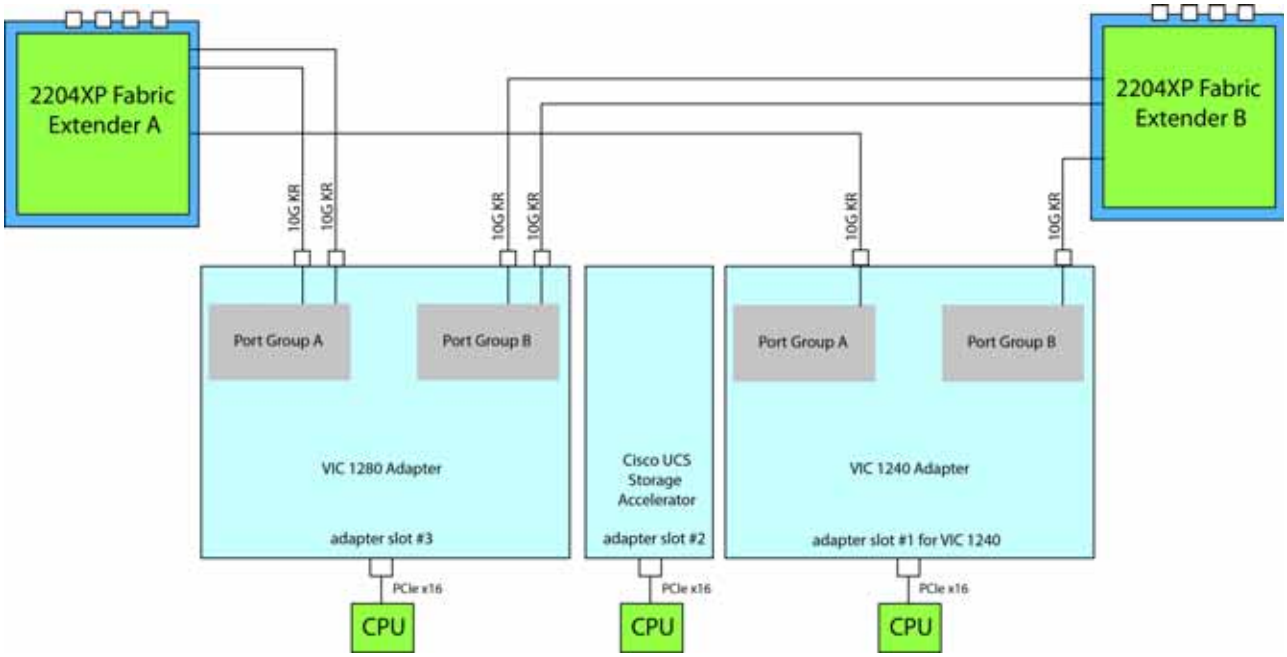
In ***Figure 33***, two ports from the VIC 1280 are channeled to 2204XP Fabric Extender A and two are channeled to 2204XP Fabric Extender B. The VIC 1240 slot is empty and adapter slot 2 contains a Cisco UCS Storage Accelerator (which has no network connectivity). The result is 20 Gb of bandwidth to each Fabric Extender. This configuration is not supported for 2-CPU systems.

Figure 33 VIC 1280 in Adapter Slot 3 (VIC 1240 and Cisco UCS Storage Accelerator)



In ***Figure 34***, one port from the VIC 1240 is channeled to 2204XP Fabric Extender A and one is channeled to 2204XP Fabric Extender B. The VIC 1280 installed in adapter slot 3 channels two ports to each of the Fabric Extenders. Adapter slot 2 contains a Cisco UCS Storage Accelerator (which has no network connectivity). This configuration is not supported for 2-CPU systems. The result is 30 Gb of bandwidth to each Fabric Extender.

Figure 34 VIC 1240, VIC 1280, and Cisco UCS Storage Accelerator



Connectivity using the Cisco UCS 2104XP Fabric Extender

The connectivity options shown in ***Figure 35*** through ***Figure 41*** are shown in ***Table 31***.

Table 31 Supported Adapter[1] Combinations Using the 2104XP[2]

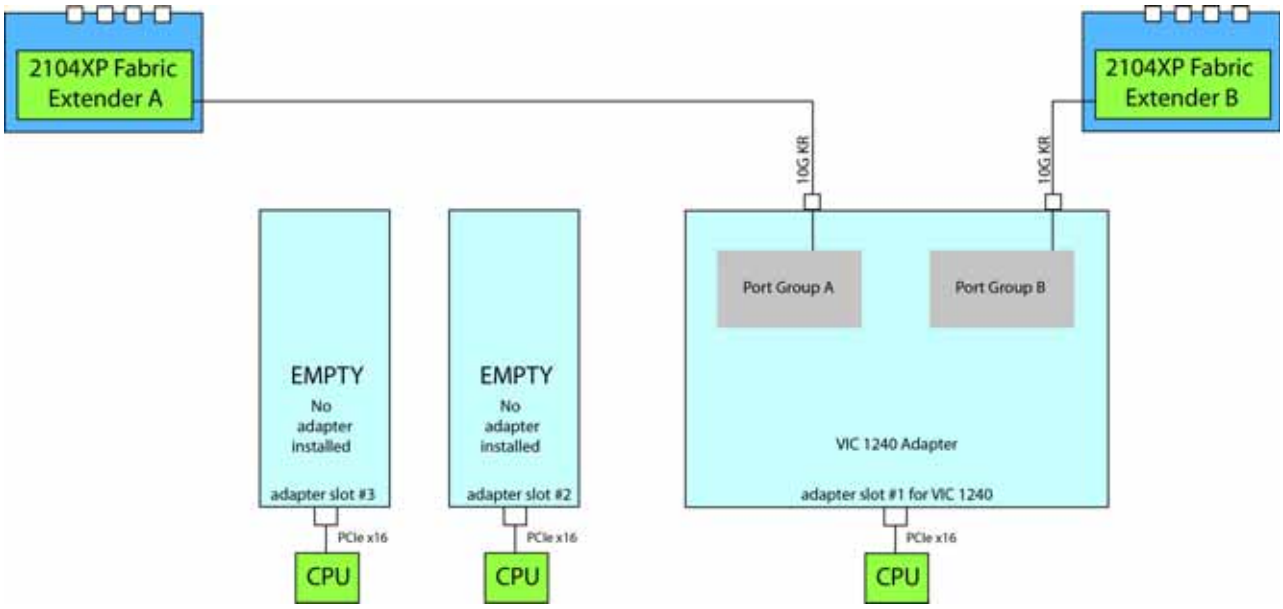
Adapter Slot 1	Adapter Slot 2	Adapter Slot 3	Total Available Bandwidth
			2 x 2104 XP
VIC 1240	Not populated	Not populated	20 Gb ***Figure 35 on page 62***
VIC 1240	Not populated	VIC 1280	40 Gb ***Figure 36 on page 62***
Not populated	Not populated	VIC 1280	20 Gb ***Figure 37 on page 63***
VIC 1240	Not populated	Emulex or QLogic CNA	40 Gb ***Figure 38 on page 63***
VIC 1240	Port Expander Card for VIC 1240	Not populated	Network I/O not supported[3]
Not populated	Not populated	Emulex or QLogic CNA	20 Gb ***Figure 39 on page 64***
VIC 1240	Not populated	Cisco UCS Storage Accelerator	20 Gb ***Figure 40 on page 64***
VIC 1240	Cisco UCS Storage Accelerator[4]	Cisco UCS Storage Accelerator[4]	20 Gb ***Figure 41 on page 65***
Not populated	Cisco UCS Storage Accelerator	VIC 1280	20 Gb ***Figure 42 on page 65***
VIC 1240	Port Expander Card for VIC 1240	VIC 1280	Network I/O not supported[3]
VIC 1240	Cisco UCS Storage Accelerator	VIC 1280	40 Gb ***Figure 43 on page 66***

Notes

1. In the server BIOS and on the motherboard, “Adapter 1,” “Adapter 2,” and “Adapter 3” are labeled as “mLOM,” “Mezz 1,” and “Mezz 2,” respectively
2. Not all combinations are supported in 2-CPU configurations (see ***Table 9 on page 17***)
3. The 2104XP fabric extender is not compatible with any network I/O card installed in adapter slot 2.
4. This combination requires that both Storage Accelerators be identical.

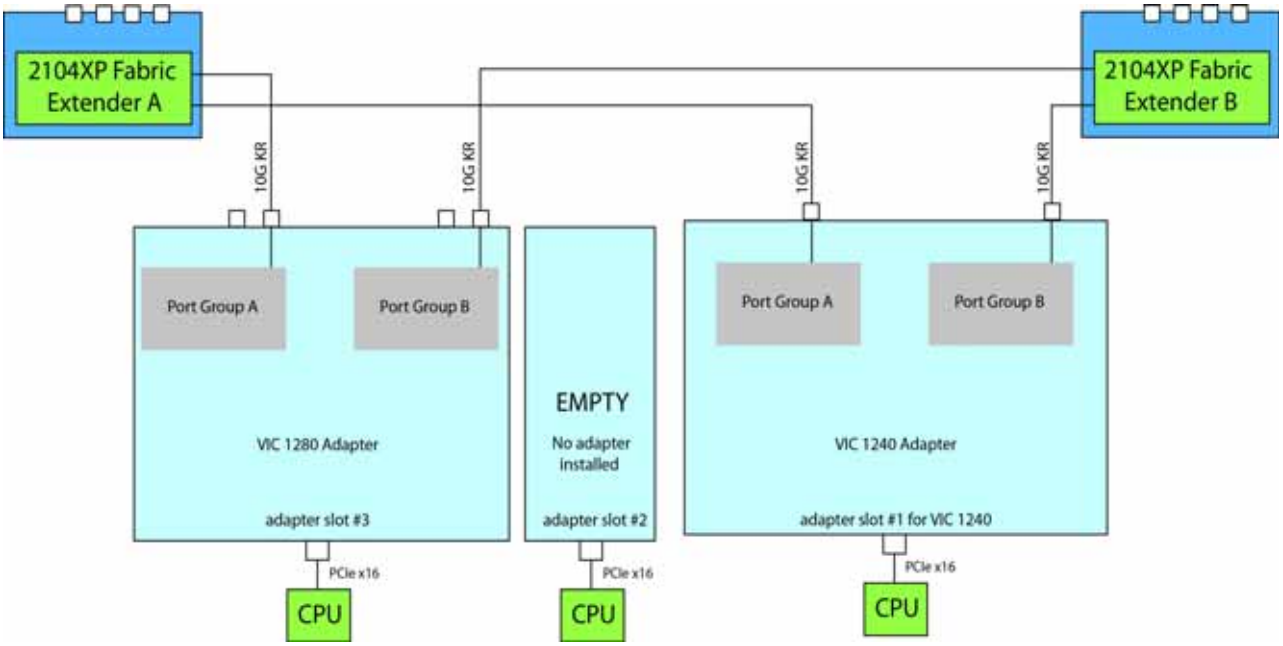
In ***Figure 35***, one port from the VIC 1240 is channeled to 2104XP Fabric Extender A and one is channeled to 2104XP Fabric Extender B. The result is 10 Gb of bandwidth to each Fabric Extender.

Figure 35 VIC 1240 (adapter slots 2 and 3 empty)



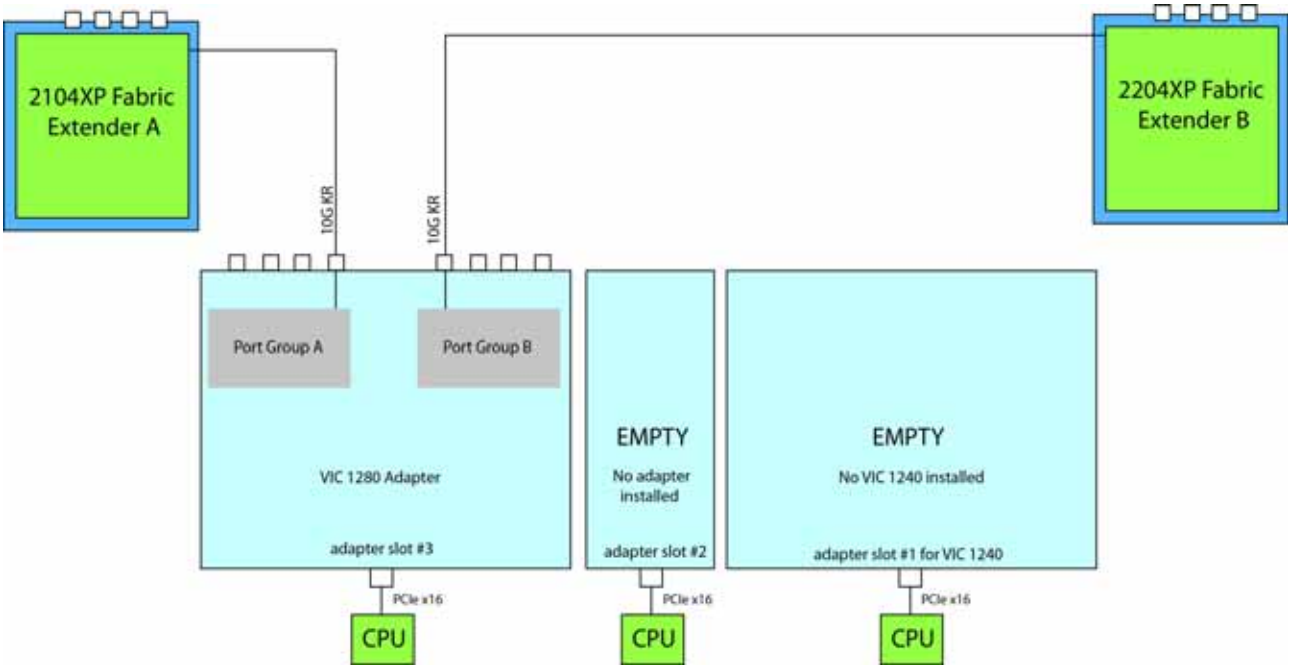
In ***Figure 36***, one port from the VIC 1240 is channeled to 2104XP Fabric Extender A and one is channeled to 2104XP Fabric Extender B. The VIC 1280 installed in adapter slot 3 channels one port to each of the Fabric Extenders. The result is 20 Gb of bandwidth to each Fabric Extender.

Figure 36 VIC 1240 and VIC 1280 (adapter slot 2 empty)



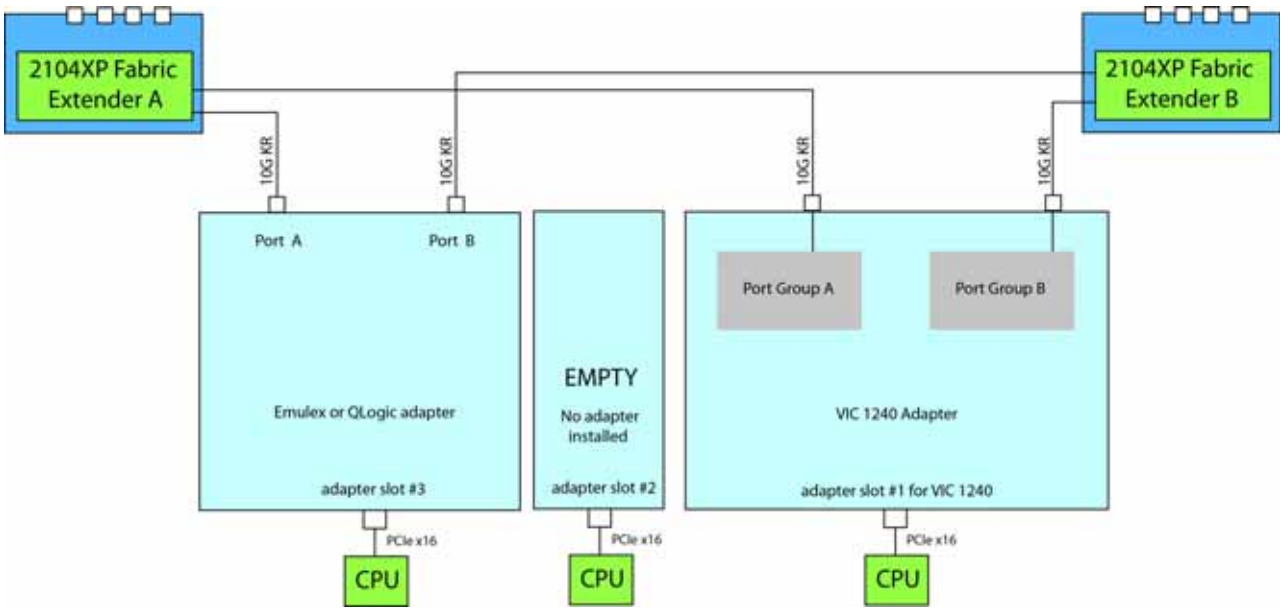
In *Figure 37*, one port from the VIC 1280 is channeled to 2208XP Fabric Extender A and one is channeled to 2208XP Fabric Extender B. The VIC 1240 slot is empty and adapter slot 2 is empty. The result is 10 Gb of bandwidth to each Fabric Extender. This is not supported for 2-CPU configurations.

Figure 37 VIC 1280 (VIC 1240 and adapter slot 2 are empty)



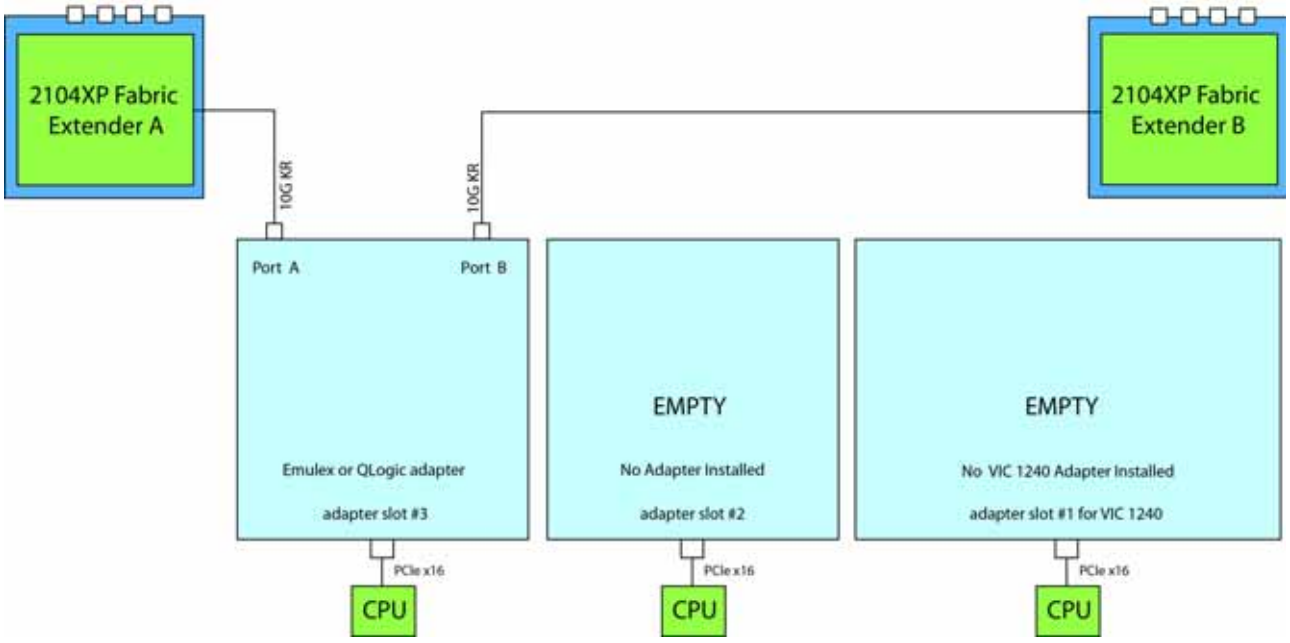
In *Figure 38*, one port from the VIC 1240 is channeled to 2104XP Fabric Extender A and one is channeled to 2104XP Fabric Extender B. The Emulex or QLogic adapter in adapter slot 3 also channels one port to each of the Fabric Extenders. The result is 20 Gb of bandwidth to each Fabric Extender.

Figure 38 VIC 1240 and Emulex or QLogic Adapter in Adapter Slot 3 (adapter slot 2 empty)



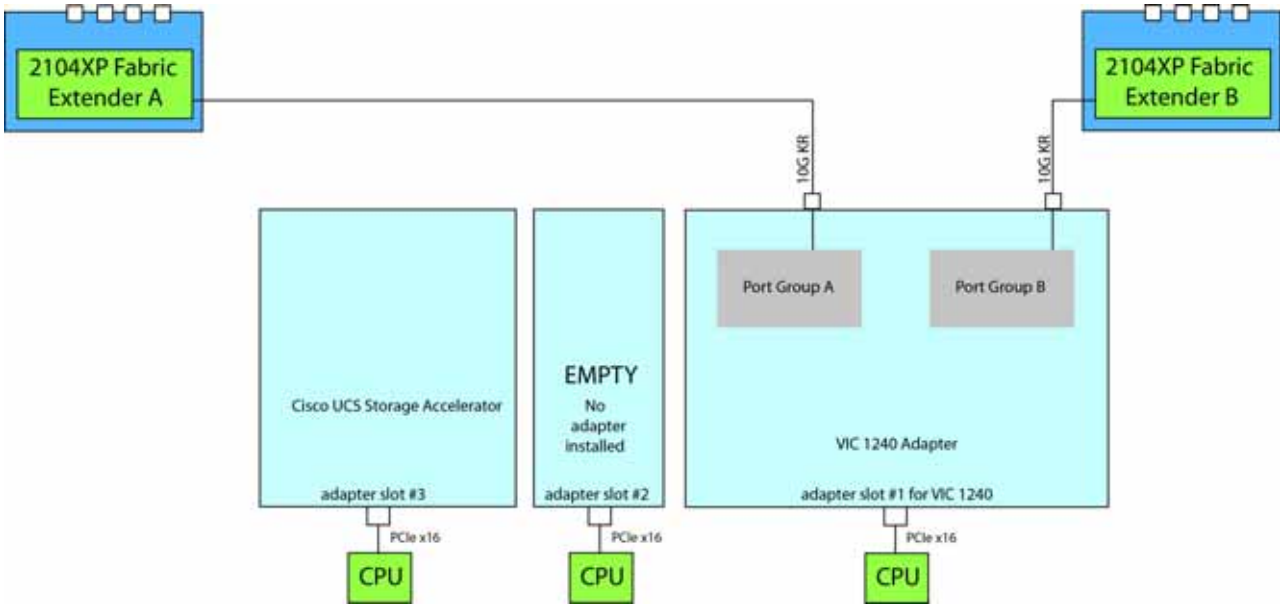
In ***Figure 39***, there is no VIC 1240. In this case, an Emulex or QLogic adapter is installed in adapter slot 3. Ports A and B of the adapter card connect to the Fabric Extenders, providing 10 Gb per port.

Figure 39 One Emulex or QLogic Adapter (VIC 1240 slot and adapter slot 2 are empty)



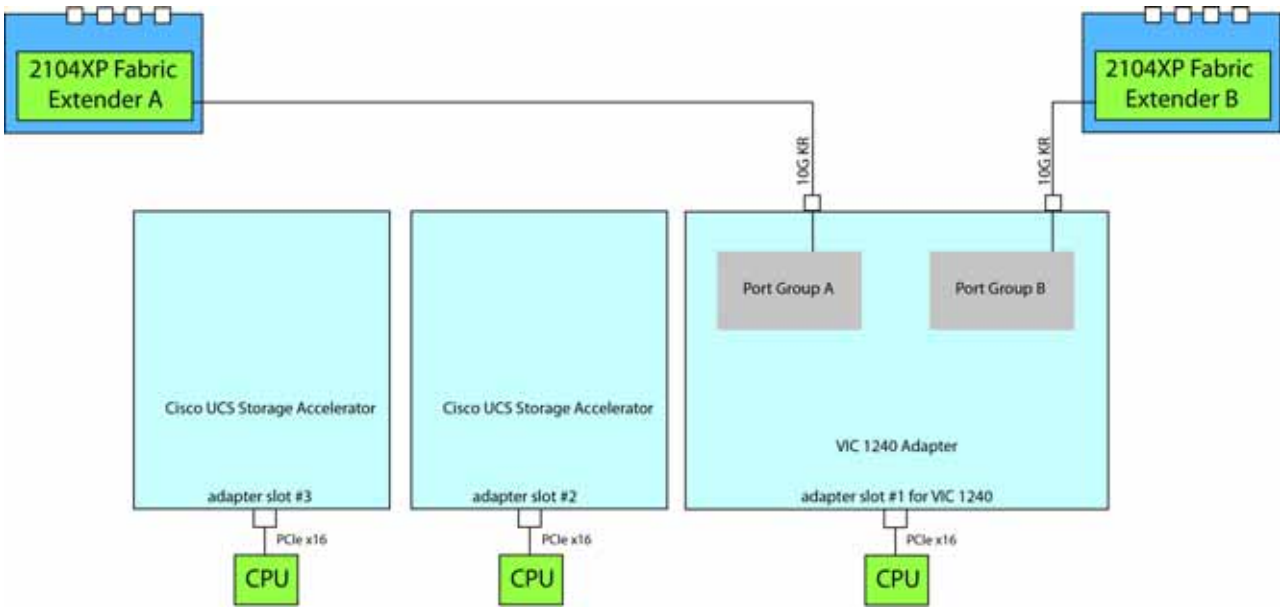
In ***Figure 40***, one port from the VIC 1240 is channeled to 2104XP Fabric Extender A and one is channeled to 2104XP Fabric Extender B. The result is 10 Gb of bandwidth to each Fabric Extender. A Cisco UCS Storage Accelerator (which provides no network connectivity) is installed in slot 2.

Figure 40 VIC 1240 (Storage Accelerator in adapter slot 3 and adapter slot 2 empty)



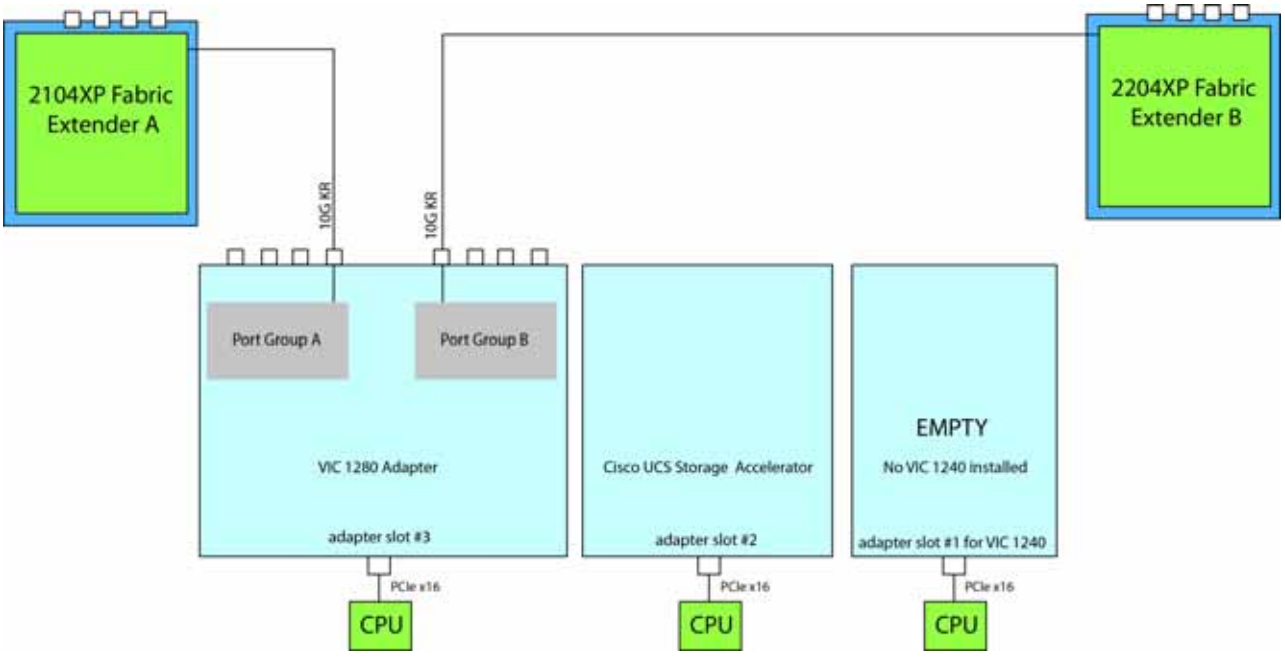
In *Figure 41*, one port from the VIC 1240 is channeled to 2104XP Fabric Extender A and one is channeled to 2104XP Fabric Extender B. The result is 10 Gb of bandwidth to each Fabric Extender. Cisco UCS Storage Accelerators (which provide no network connectivity) are installed in slots 2 and 3. This configuration is not supported for 2-CPU systems.

Figure 41 VIC 1240 (Storage Accelerators in adapter slots 2 and 3)



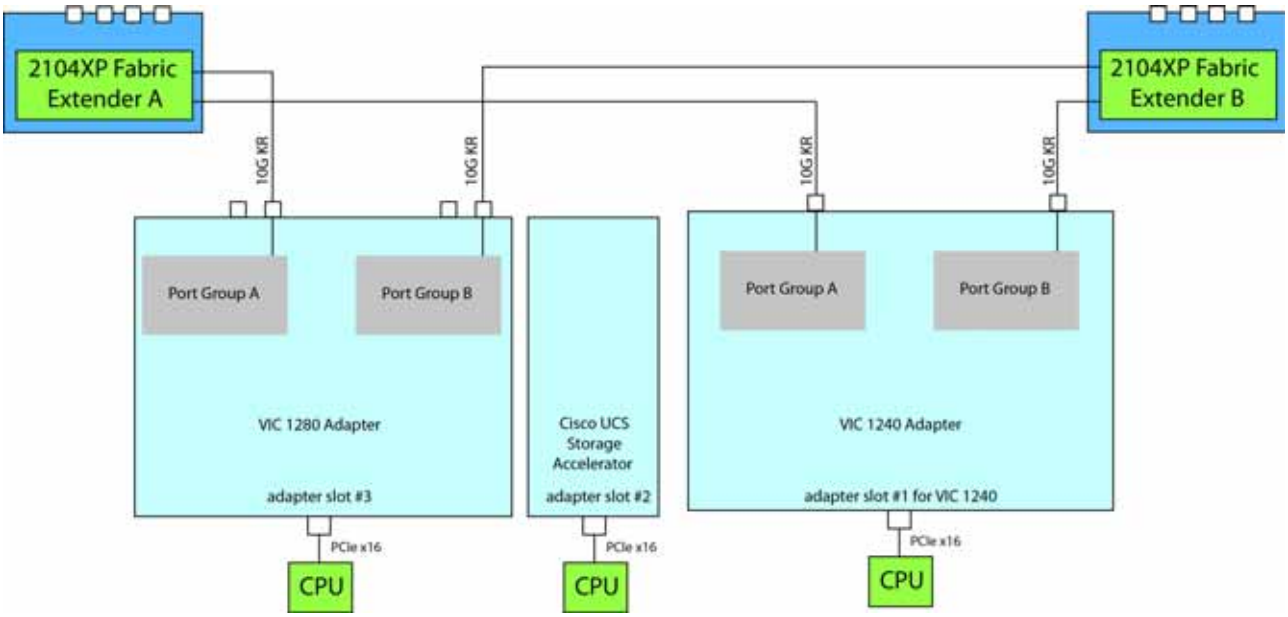
In *Figure 42*, one port from the VIC 1280 is channeled to 2208XP Fabric Extender A and one is channeled to 2208XP Fabric Extender B. The VIC 1240 slot is empty and adapter slot 2 contains a Cisco UCS Storage Accelerator (which has no network connectivity). The result is 10 Gb of bandwidth to each Fabric Extender. This configuration is not supported for 2-CPU systems.

Figure 42 VIC 1280 (VIC 1240 slot empty and Cisco UCS Storage Accelerator in adapter slot 2)



In *Figure 43*, one port from the VIC 1240 is channeled to 2104XP Fabric Extender A and one is channeled to 2104XP Fabric Extender B. The VIC 1280 installed in adapter slot 3 channels one port to each of the Fabric Extenders. Adapter slot 2 contains a Cisco UCS Storage Accelerator (which has no network connectivity). This configuration is not supported for 2-CPU systems. The result is 20 Gb of bandwidth to each Fabric Extender.

Figure 43 VIC 1240, VIC 1280, and Cisco UCS Storage Accelerator



TECHNICAL SPECIFICATIONS

Dimensions and Weight

Table 32 UCS B420 M3 Dimensions and Weight

Parameter	Value
Height	1.95 in. (50 mm)
Width	16.5 in.(419 mm)
Depth	24.4 in. (620 mm)
Weight	■ Base server weight (no CPUs, no memory, no adapter cards, no USB, 3 baffles, no SD cards, no HDDs, 4 HDD fillers, no SuperCap, no TFM) = 20.7 lbs (9.4 kg) ■ Minimally configured server (2 CPUs, 2 DIMMs, MLOM, no adapter cards, with USB, 3 baffles, with 1 SD card, 1 HDD, HDD fillers, no SuperCap, no TFM) = 24.3 lbs (11.0 kg) ■ Fully configured server (4 CPUs, 48 DIMMs, MLOM, 2 adapter cards, with USB, 3 baffles, with 2 SD cards, 4 HDDs, with SuperCap, with TFM) = 34.3 lbs (15.56 kg)

Power Specifications

For configuration-specific power specifications, use the Cisco UCS Power Calculator at:

https://express.salire.com/Go/Cisco/Cisco-UCS-Power-Calculator.aspx

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Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
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